REPORT RESUMES

ED 019 455 VT 002 553

A GATEWAY TO HIGHER ECONOMIC LEVELS, VOCATIONAL-TECHNICAL EDUCATION TO SERVE MISSOURI.

BY- SWANSON, J. CHESTER AND OTHERS
CALIFORNIA UNIV., BERKELEY, FIELD SERVICE CENTER

PUB DATE 66
EDRS PRICE MF-$0.50 HC-$3.20 78P.

DESCRIPTORS- *VOCATIONAL EDUCATION, TECHNICAL EDUCATION, *PROGRAM EVALUATION, *STATE PROGRAMS, EVALUATION CRITERIA, STUDENT ENROLLMENT, PROGRAM DESCRIPTIONS, *ADMINISTRATIVE ORGANIZATION, SCHOOL ORGANIZATION, EDUCATIONAL RESEARCH, OCCUPATIONAL GUIDANCE, TEACHER EDUCATION, FINANCIAL POLICY, STATE FEDERAL SUPPORT, VOCATIONAL SCHOOLS, *EDUCATIONAL PLANNING, HIGH SCHOOLS, POST SECONDARY EDUCATION, ADULT VOCATIONAL EDUCATION, MISSOURI,

A STUDY OF VOCATIONAL-TECHNICAL EDUCATION IN THE PUBLIC SCHOOLS OF MISSOURI, COMMISSIONED BY THE GOVERNOR, CONCERNED THE AVAILABILITY, THE CLIENTELE, THE CURRICULUM, THE RELATION OF ENROLLMENT TO EMPLOYMENT OPPORTUNITIES, THE INVOLVEMENT OF PERSONS OUTSIDE THE SCHOOLS, AND ANCILLARY SERVICES OF THESE PROGRAMS. ITS OBJECTIVE WAS TO PROVIDE THE BASIS FOR RECOMMENDATIONS TO IMPROVE THE STATE'S VOCATIONAL-TECHNICAL EDUCATION SERVICES. SOME OF THE 25 RECOMMENDATIONS WERE THAT (1) THE STATE BE DIVIDED INTO SIX GEOGRAPHIC DISTRICTS AND ONE POST-SECONDARY UNIT WITH AN ADMINISTRATOR RESPONSIBLE FOR THE MANAGERIAL ACTIVITIES WITHIN EACH, (2) A RESEARCH SECTION BE DEVELOPED, (3) 10 INTERNSHIPS TO DEVELOP LEADERSHIP FOR VOCATIONAL EDUCATION IN MISSOURI BE DEVELOPED AND MAINTAINED JOINTLY BY THE STATE DIVISION OF VOCATIONAL EDUCATION, THE UNIVERSITY OF MISSOURI, AND THE LOCAL SCHOOL DISTRICTS, (4) THE COMPREHENSIVE HIGH SCHOOLS BE GIVEN FIRST PRIORITY FOR DEVELOPING VOCATIONAL EDUCATION PROGRAMS, (5) THE PROGRAMS BE ADAPTED TO SERVE SMALL HIGH SCHOOLS, (6) AREA VOCATIONAL SCHOOLS BE DEVELOPED ONLY TO SUPPLEMENT THE VOCATIONAL EDUCATION PROGRAMS IN COMPREHENSIVE HIGH SCHOOLS AND NOT AT THE EXPENSE OF HIGH SCHOOL PROGRAMS IN RESIDENTIAL AREA HIGH SCHOOLS, AND (7) MORE VOCATIONAL-TECHNICAL EDUCATION PROGRAMS BE PROVIDED FOR PERSONS WHO HAVE COMPLETED HIGH SCHOOL OR WHO ARE BEYOND THE NORMAL AGE OF HIGH SCHOOL ATTENDANCE AND THAT SUCH SERVICES BE PROVIDED IN MORE LOCATIONS AND FOR MORE OCCUPATIONS. (EM)

ED019455

A GATEWAY TO HIGHER ECONOMIC LEVELS

VOCATIONAL-TECHNICAL EDUCATION TO SERVE MISSOURI

A Study of
Vocational-Technical Education
in the
Public Schools of Missouri

VT002553

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

VOCATIONAL-TECHNICAL EDUCATION TO SERVE MISSOURI

* * * * * * * * * * * * * *

A GATEWAY TO HIGHER ECONOMIC LEVELS

J. CHESTER SWANSON, *Director of Study*
UNIVERSITY OF CALIFORNIA
DENIS J. KIGIN, *Associate Director*
UNIVERSITY OF MISSOURI
MARVIN R. FIELDING, *Assistant Director*
UNIVERSITY OF MISSOURI

FIELD SERVICE CENTER
SCHOOL OF EDUCATION, UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA
1966

CONTENTS

Letter of Transmittal i

Steering Committee. iii

Summary of Recommendations iv

Chapter I - Introduction 1

Definitions and Limitations 1

A Rationale for Vocational-Technical Education 2

Criteria for Effective Vocational-Technical Education. 5

Chapter II - The Present Program of Vocational Education Services in Missouri 8

In the High Schools 8

Post-High School Programs 11

Programs for Youth and Adults Already in the Labor Market 14

Vocational Education Services for Youth and Adults with Special Needs 18

Ancillary Services 20

Qualitative Factors in Vocational Education for Missouri 25

Summary of Study Conclusions 30

Chapter III - Recommendations, Program Operations 34

Organization for the Administration and Supervision of Vocational-Technical Education in Missouri 34

Vocational Education in the High Schools 39

Area Vocational Schools 45

CONTENTS (Continued)

Vocational-Technical Education Beyond the High School. 47

Vocational-Technical Education for Youth and Adults at Work 49

Vocational Education for Youth and Adults with Special Needs 51

Ancillary Services 53

Chapter IV - Financing Vocational-Technical Education 57

State of Missouri and Federal Funds Available 57

Recommendations 62

Conclusion 66

Berkeley, California
December 15, 1966

The Honorable Warren E. Hearnes
Governor of Missouri
Jefferson City, Missouri

Dear Sir:

I am presenting herewith the results of the study of vocational-technical education in the public schools of Missouri which you commissioned in November of last year. I have attempted to review all of the information which could be assembled in the time, and with the staff I had at my command. I have considerable confidence in the accuracy of this information. The recommendations were obtained from what appear to be logical and reasonable conclusions from this information reviewed and within the professional experiences of the director and his staff.

This study would have been impossible without the cooperation of many persons. Superintendents of schools, junior college administrators, State Department of Education personnel, and University of Missouri staff were most generous with their time and help in efforts to assist in the study. The Steering Committee, under the capable chairmanship of Lieutenant Governor Thomas F. Eagleton, met upon call and gave direction to activities appropriate to their interests and experience. I would like to express my appreciation to Lieutenant Governor Eagleton, the Steering Committee, and particularly to the following persons who on many occasions gave valuable assistance:

Professor H. H. London, Division of Industrial Education, University of Missouri;

Mr. Philip Maher, Director Office of State and Regional Planning and Community Development, State of Missouri;

Mr. Thaine McCormick, Vocational Education Specialist, Kansas City Regional Office, U. S. Office of Education;

Mr. B. W. Robinson, Assistant Commissioner and State Director of Vocational Education, Department of Education, State of Missouri;

Professor Herbert W. Schooling, Dean of Faculties, University of Missouri.

It has been a pleasure to work in this wonderful State and with your fine people. I envision your State as a gateway to social and economic development in the years ahead just as it has been a geographic gateway for so many people in the history of our country.

Sincerely yours,

J Chester Swanson

J. Chester Swanson

Steering Committee

Thomas F. Eagleton, Chairman
Lieutenant Governor
State of Missouri

George W. Apel
Missouri State Supervisor
Bureau of Apprenticeship and Training
U. S. Department of Labor

Joseph Cosand, President
St. Louis-St. Louis County
Junior College District

J. Gordon Crowe, Assistant Director
Office of Economic Opportunity
State of Missouri

Charles E. Curran, Executive
Kansas City Association of
Trusts and Foundations

J. R. Kratochvil, Assistant Director
Division of Employment Security
State of Missouri

Philip Maher, Director
Office of State and Regional Planning and
Community Development

Thaine D. McCormick
Vocational Education Specialist
U. S. Office of Education
Region VI

B. W. Robinson
Assistant Commissioner
Missouri Department of Education

Tom Stapleton
Director of Research
Missouri Division of Commerce and
Industrial Development

SUMMARY OF RECOMMENDATIONS

This is a summary statement of the recommendations made in the study. The justification and explanation of these recommendations are given in Chapter 3 and Chapter 4.

The State Organization for Administration, Supervision and Research in Vocational-Technical Education

It is recommended that:

1 - The State be divided into six geographic districts and one post-secondary unit with an administrator responsible for the managerial activities within each of these administrative units.

2 - A research section be developed to make evaluative studies, review and disseminate significant studies made in other states, and to inform the administration, the legislature, the public and the professional educator of the strengths, weaknesses and activities of vocational education.

3 - A staff of specialists and consultants be established within the State Division of Vocational Education free from managerial duties to spend time in curriculum development, construction of instructional materials and in program evaluation.

4 - A state advisory committee for vocational-technical education be appointed by the State Director of Vocational Education and used extensively.

5 - There be developed and maintained jointly by the State Division of Vocational Education, the University of Missouri and the local school districts ten internships to develop leadership for vocational education in Missouri.

Vocational Education in High Schools

It is recommended that:

1 - Vocational education programs be provided in high schools for students who need skills and knowledge related to employment with such instruction to begin at the 11th grade.

2 - The comprehensive high school be given first priority for the development of vocational education programs.

3 - The metropolitan areas with large numbers of students and labor market jobs be given particular attention.

4 - The "cooperative occupational education" programs be adapted to serve small high schools.

Area Vocational Schools

It is recommended that:

1 - Area vocational schools be developed only to supplement the vocational education programs in comprehensive high schools and never at the expense of high school programs in residential area high schools.

2 - Area vocational schools be established and operated only after carefully developed criteria have been met for the operation of such schools.

3 - When area vocational schools serve students from outside the residential area of the local school district operating the area school the total cost of services to such students be borne by the state and the school district of residence of the student.

4 - Area vocational schools provide vocational education programs for post-high school youth and for youth and adults already in the labor market.

Vocational-Technical Education Beyond the High School

It is recommended that:

1 - More vocational-technical education programs be provided for persons who have completed high school or who are beyond the normal age for high school attendance and that such services be provided in more locations and for more occupations.

2 - Priority for such post-high school programs be given to public junior colleges when they have the desire and the ability to provide quality programs.

3 - Junior colleges which provide vocational-technical education be designated area vocational schools for post-high school programs.

Vocational-Technical Education for Youth and Adults at Work

It is recommended that:

1 - Part-time and short-term vocational-technical education courses be offered in junior colleges, area vocational schools and in high schools where adequate equipment and qualified teachers are available.

2 - The state subsidize such vocational-technical courses so that it is not an added burden on the local taxpayer or a cost to the student to the extent that it will prohibit the enrollment of persons in these courses.

Vocational Education for Youth and Adults with Special Needs

It is recommended that:

1 - The state recognize the social and economic importance of vocational education for persons who cannot meet the standards for entrance into normal vocational education courses and plan for vocational education services for such persons. Failure to meet such standards may be related to physical, mental or educational handicaps or to a lack of motivation.

2 - The state use the Federal activities of the Manpower Development and Training Act, the Economic Opportunity Act and the Elementary and Secondary Education Act, where applicable, to develop and operate programs for youth and adults not now being provided satisfactory vocational education services in the public schools.

Ancillary Services to Vocational-Technical Education

It is recommended that:

1 - The state continue to provide (a) teacher training for vocational-technical education teachers, (b) development of instructional materials, (c) guidance and counseling services, and (d) research for making vocational education more effective.

Financing Vocational-Technical Education in Missouri

It is recommended that:

1 - The state provide additional funds for program operation of vocational education on the following schedule:

School Year	Additional Funds from State	Estimated Total State Funds for Program Operation
1966-67		$ 1,250,000
1967-68	$ 2,000,000	3,250,000
1968-69	4,000,000	5,250,000
1969-70	6,000,000	7,250,000

2 - The state provide $2,000,000 each year to be allocated to the local school districts for the construction of buildings and the purchase of equipment for expanding vocational education services.

3 - A committee be appointed by the Governor at the end of two years to review and evaluate the use of these funds and the need for funds from the state in the future.

4 - The state use Federal funds available to assist in the education for employment of the physically, mentally and educationally handicapped.

Vocational-Technical Education to Serve Missouri

J. Chester Swanson

CHAPTER I

INTRODUCTION

The economy of a state and the welfare of its people depend largely upon the ability of its people to produce services and products. The capacity to produce is related to the skills and knowledge possessed by individuals. Since people are not born with the skills and knowledge to provide useful services and to produce valuable products it becomes necessary for a state to maintain a program of education to make effective and efficient citizens. Vocational-technical education should be an important part of a state's program of education.

Definitions and Limitations

Vocational-technical education is defined as a program of instruction which provides persons with skills and knowledge for a specific employment opportunity. In addition to these specific skills, and the related knowledge, persons must have adequate social skills, academic proficiency and personal motivation to use such skills. Vocational-technical education is generally provided after a person has had 8 or 10 years of general education. When it is provided in the high school or the junior college it is, in general, a one-half day program with the other half day devoted to general academic and/or cultural studies.

It is suggested that no vocational education courses be offered in the public schools before grade 11. Industrial arts, home making, typewriting and other practical arts courses which are often pre-vocational in nature should be available in earlier grades.

This study will not consider vocational programs of a professional nature which require a baccalaureate degree. Neither will it consider the general academic programs, practical arts courses or related services which are vital to vocational education students as well as other students. No statements made in this study, nor the omission of statements, should be interpreted as indicating that the other phases of the educational spectrum are not important.

A Rationale for Vocational-Technical* Education

Scholars from education and many other disciplines agree that the vocational part of the education spectrum is important. It is important from three aspects.

1. Vocational education has socialogical values - it serves people. Many studies have been made which indicate that persons who have completed a vocational education program have been able to get and hold a job in a more satisfactory manner than persons who have not developed vocational skills.[1]

---

[1] See the following studies:

(a) Eninger, Max U., THE PROCESS AND PRODUCT OF TRADE AND INDUSTRIAL HIGH SCHOOL LEVEL VOCATIONAL EDUCATION IN THE UNITED STATES. American Institutes for Research, Pittsburgh, Pennsylvania, 1965.

(b) Andre, Nevin E., POST-HIGH SCHOOL EDUCATIONAL EXPERIENCES AND OCCUPATIONAL STATUS OF GENERAL-ACADEMIC AND VOCATIONAL-TECHNICAL HIGH SCHOOL GRADUATES. Unpublished doctoral thesis, School of Education, University of Missouri, 1964.

(c) Schiffman, Jacob, EMPLOYMENT OF HIGH SCHOOL GRADUATES AND DROPOUTS IN 1962, U. S. Department of Labor, Monthly Labor Review, July 1963.

(d) Kerr, Clark; Dunlop, John T.; Harbison, Frederick; and Myers, Charles A., INDUSTRIALIZATION AND INDUSTRIAL MAN, Chapters 5 and 6. Oxford University Press, New York, 1964.

(e) Gardner, John W., EXCELLENCE, CAN WE BE EQUAL AND EXCELLENT TOO?, New York: Harper and Son, 1961.

(f) Conant, James B., THE AMERICAN HIGH SCHOOL TODAY, New York: McGraw Hill Book Co., Inc., 1959.

(g) Merton, Robert K., and Nisbet, Robert A., CONTEMPORARY SOCIAL PROBLEMS, Occupation and Schooling (p. 478), and The Job Itself (p. 482). Harcourt, Brace and World, Inc., New York, 1961.

(h) Reuss, Henry S., THE CRITICAL DECADE. P. 134 ff. McGraw Hill Book Co., Inc., New York, 1964.

---

*The hyphenated term Vocational-Technical Education is used to indicate the broad scope of such education. The single term Vocational Education will, in general, be used synonymously with vocational-technical education.

> "Education for productive work is obviously not the only solution to the socio-economic problems facing the nation. It is in the schools and colleges, however, that the tragic cycle of low economic growth, unemployment, automation, and inadequate education can best be broken, for it is in the classroom that skills are acquired, the aptitude for knowledge is whetted, and hope is kindled."[2]

The Federal government has recognized the social values of vocational education and has provided millions of dollars in recent years to make people more employable and thus provide them and their families economic security. There is considerable evidence that economic security contributes to the social, psychological, and physical well-being of a person and his family.

2. Vocational education has economic values - it serves business and industry. Our production and service organizations demand personnel with skills and knowledge. Business, industry and the military spend millions of dollars each year to train, update, upgrade and retrain their employees. The mechanization and automation of so many business and industrial activities are constantly demanding more exacting skills and more extensive knowledge. Economists have studied extensively the value of education and have recognized the value of human capital.[3] A large

---

[2] Venn, Grant, MAN, EDUCATION AND WORK, American Council on Education, Washington, D. C., 1964.

[3] See the following studies:

(a) Harbison, Frederick and Myers, Charles, EDUCATION, MANPOWER AND ECONOMIC GROWTH, McGraw-Hill Book Co., New York, 1964.

(b) Clark, Harold F. and Sloan, Harold S.,
   1. CLASSROOMS IN THE FACTORIES, Dickinson University, Institute of Research, Rutherford, N. J., 1958.
   2. CLASSROOMS IN THE STORES, Roxbury Press, Sweet Springs, Missouri, 1962.
   3. CLASSROOMS IN THE MILITARY, Bureau of Publications, Teacher's College, Columbia University, New York, 1964.

(c) Schultz, Theodore W. THE ECONOMIC VALUE OF EDUCATION. Columbia University Press, New York, 1963.

(d) Becker, Joseph M., IN AID OF THE UNEMPLOYED. Chapters II and VII. The Johns Hopkins Press, Baltimore, 1965.

(e) Committee on Economic Development, RAISING LOW INCOMES THROUGH IMPROVED EDUCATION. Committee on Economic Development, New York, 1965.

segment of the achievement of human capital is in the high schools and junior colleges of our country. It is closely related to achieving the specific skills and knowledge which are provided by a vocational curriculum. "Being a 'bright young man' cuts relatively little ice with employers looking for skills to do some specific kind of work."[4]

3. Vocational education has political values - it serves our nation. Our nation has achieved its position of international leadership largely by its ability to produce. It may be that our ability to survive as a nation will depend upon our ability to produce effectively and efficiently. The skills and knowledge which will give our nation this productive capacity will be the human capital possessed by our citizens. These skills and knowledge will be attained by the vocational education process.[5]

The most direct and dramatic example of vocational education serving our nation was during World War II. Seven and one-half million persons received specific skills by a program of Vocational Education for National Defense. These were in general short-term intensive training programs. But they were a major factor of our miraculous productive capacity in this period of national need.[6]

More recently economists have made studies which provide evidence that education is an investment of society and that it provides immediate returns in terms of greater production, greater income tax payments, a lessened cost of social welfare payments, and a lower cost of social delinquency.[7]

---

[4] Venn, Grant, MAN, EDUCATION AND WORK, p. 14.

[5] See the following studies
(a) Schultz, Theodore W., THE ECONOMIC VALUE OF EDUCATION. Columbia University Press, New York, 1963.
(b) Humphrey, Hubert H., WAR ON POVERTY. McGraw-Hill Book Co., New York, 1964.
(c) Becker, Joseph M. (Editor), IN AID OF THE UNEMPLOYED. The Johns Hopkins Press, Baltimore, 1965.
(d) Brown and Phelps, E. H., THE ECONOMICS OF LABOR, Training for the Working Life. (p. 62). Yale University Press, New Haven, 1962.
(e) Weisbrod, Burton A., EXTERNAL BENEFITS OF PUBLIC EDUCATION, AN ECONOMIC ANALYSIS. Industrial Relations Section, Princeton University, New Jersey, 1964.

[6] Musser, W. Daniel, VOCATIONAL TRAINING FOR WAR PRODUCTION WORKERS, Federal Security Agency, U. S. Office of Education, Bulletin No. 10, 1946.

Criteria for Effective Vocational Education Programs

An examination of effective programs of vocational-technical education in various states indicates common elements which may be stated as criteria for effective programs. The availability of vocational education is important since it is a dynamic element of our society.

1. Vocational-technical education must be available to four groups of persons: (a) youth in high school; (b) youth and adults in post-high school institutions (junior colleges, technical institutes, etc.); (c) youth and adults at work (to update, upgrade or retrain those who are or have been in the labor market); and (d) youth or adults with special needs (those who cannot meet the standards of normal vocational programs).

> "It is no accident that the city with the most extensive program of secondary vocational education (Milwaukee) is the one city that graduates 94 per cent of its students from high school, and that the state with the greatest education opportunities beyond the high school (California) has been able to induce so many of its high school graduates to continue their education."[8]

2. No student should be permitted in a vocational program unless there is evidence that he has the interest, the aptitude and the motivation to succeed. Vocational education cannot be effective if it is a "dumping ground" for

---

[7] Ginzberg, Eli, SOCIAL AND ECONOMIC TRENDS. From Chapter II, Sixty-fourth Yearbook, Part II, VOCATIONAL EDUCATION, National Society for the Study of Education. University of Chicago Press. Chicago, Illinois, 1965.

[8] Venn, Grant, MAN, EDUCATION, AND WORK, p. 25

those who have not been able to succeed in academic subjects. Often vocational classes have been the exit vestibule from high school for those who have already been labeled failures. The vocational class cannot succeed if it consists solely of students who are classified as second-class citizens.

3. The curriculum of a vocational program must be related to the skills and knowledge demanded by the labor market. A feature unique to vocational education curricula is that it is not effective unless it is related to labor market demands. A school must recognize obsolescense in vocational curricula. Equipment, practices and teachers may have to change in order to match ever changing labor market conditions.

4. The number of persons in a vocational education program must be related to the demands of the labor market. This requirement is also unique to vocational education. In a labor market which is changing as rapidly as our economy is changing, quantitative and qualitative relationships with the labor market are exceedingly difficult to maintain. They are made even more difficult by the mobile nature of our population.

5. Vocational education must involve a larger segment of our society than just the schools. Business, industry, labor and government must be involved in the policy making and operation of effective vocational education. Staff personnel must be available at the state and local levels to maintain contacts with these other agencies in order to operate effective programs. This is a unique feature of vocational education and is often not understood or provided for by administration.

6. Certain ancillary services are necessary for effective vocational education services. These services are usually classified as (a) teacher education, (b) curriculum

development, (c) guidance and counseling, (d) research and evaluation, (e) administration and supervision.

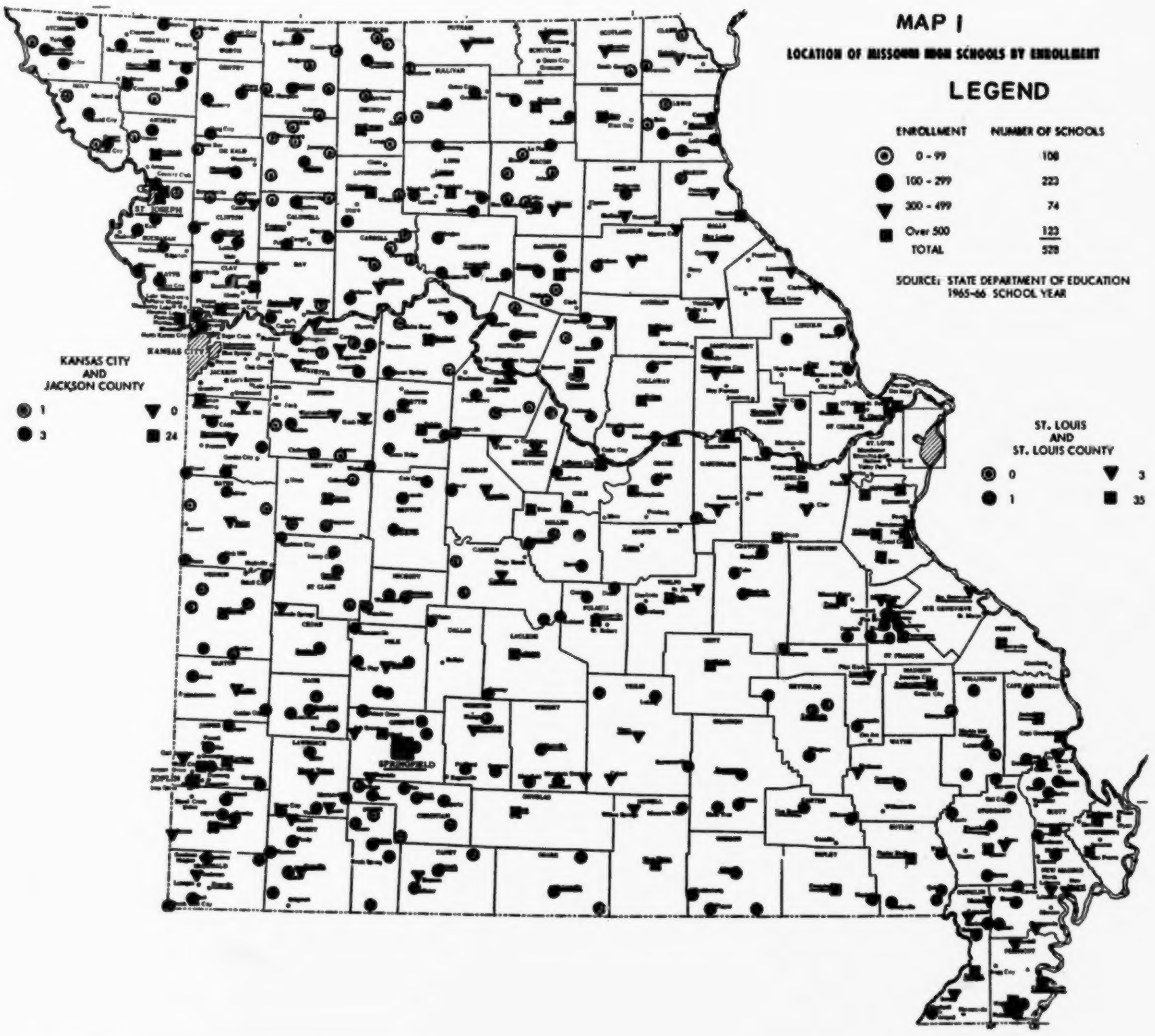
Although it may be difficult to adequately achieve these criteria, they are goals for which a state should strive and objectives which should be continuously evaluated.

CHAPTER II

THE PRESENT PROGRAM IN MISSOURI

The present vocational-technical education services offered by the public schools of Missouri are summarized in the following pages.[9]

Vocational Education in the High Schools of Missouri


MAP I
LOCATION OF MISSOURI HIGH SCHOOLS BY ENROLLMENT
LEGEND
ENROLLMENT
NUMBER OF SCHOOLS
◎ 0 - 99 108
● 100 - 299 223
▼ 300 - 499 74
■ Over 500 123
TOTAL 528
SOURCE: STATE DEPARTMENT OF EDUCATION 1965-66 SCHOOL YEAR
KANSAS CITY AND JACKSON COUNTY
◎ 1
● 3
▼ 0
■ 24
ST. LOUIS AND ST. LOUIS COUNTY
◎ 0
● 1
▼ 3
■ 35
ST. JOSEPH
KANSAS CITY
SPRINGFIELD
JOPLIN

---

[9] See Supplementary Report for a more complete summary of vocational-technical education services in Missouri. The Supplementary Report is a separately bound copy (mimeographed) of supporting data assembled by the Study Staff. Copies are on file with the Division of Vocational Education, State Department of Education, Jefferson City, Missouri.

Map No. 1 gives the location and category by size of each of the high schools in Missouri. Table No. 1 summarizes this information and gives the enrollments for the school year 1965-66.

TABLE NO. 1

Number of High Schools and their Enrollments– School Year 1965–66

Size of School by Enrollment Grades 9-12	High Schools		Enrollment, 9-12		Enrollment, 11-12	
	Number	Percent	Number	Percent	Number	Percent
0 - 99	108	21	7,115	3	3.458	3
100 - 299	223	42	40,044	16	18,898	17
300 - 499	74	14	32,197	13	12,680	11
500 or More	123	23	165,021	68	77,423	69
Total	528	100	244,377	100	112,459	100

Vocational courses are not offered in each high school in the state. Table No. 2 gives the distribution of vocational curricula by occupational category or type of program. These data show that 194, or more than one-third of the high schools, have no vocational programs and that 189, or slightly over one-third, have only one vocational curriculum. Thus, slightly over one-fourth of the high schools have more than one vocational curriculum. Most of the schools with only one vocational curriculum have either agriculture or office occupations as the one vocational curriculum. This means that youth in 73 per cent of the high schools in Missouri can, in general, choose only vocational agriculture or office occupations as training for employment as they leave high school. Statistical reports indicate that about 58 per cent of the high school graduates of 1964-65 did not continue their formal education.

TABLE NO. 2

Distribution of Vocational Curricula in Missouri High Schools School Year 1965–66

Size of School by Enrollment Grades 9-12	Number of High Schools Offering Vocational Curricula					
	None	One Voc. Curric.	Two Voc. Curric.	Three Voc. Curric.	Four Voc. Curric.	Five or More Vocational Curricula
0 - 99	80	24	4	0	0	0
100 - 299	86	91	41	5	0	0
300 - 499	14	26	21	8	3	2
500 or More	14	48	24	19	3	15
Total	194	189	90	32	6	17

The enrollments in vocational courses in the high school are given in Table No. 3. This table indicates that about 20 per cent of the youth in grades 11 and 12 in Missouri high schools are enrolled in vocational curricula.

TABLE NO. 3

Enrollment in Vocational Curricula in the High Schools of Missouri School Year 1965–66

Occupational Category	High Schools with Vocational Programs		Enrollment Grades 11 and 12	
	Number	Percent	Number	Percent
Office Occupations	166*	31	8,287	7
Agricultural Occupations	234	44	7,262	6
Trade, Technical and Industrial Occupations	47	9	4,682	4
Cooperative (Work-Study) Industrial and Merchandising	85	16	3,350	3

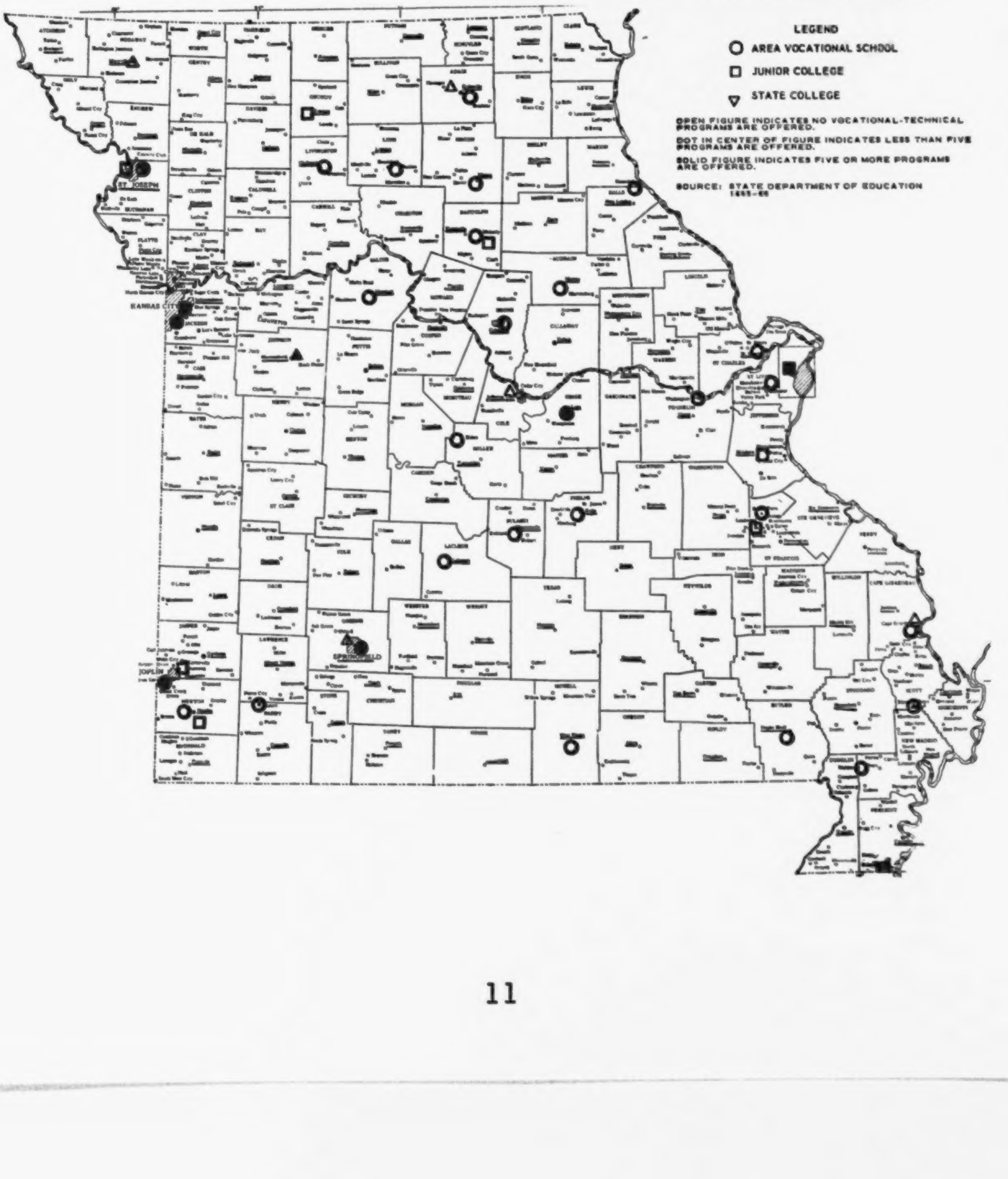
*This is the first year business education in Missouri has been considered a vocational program. This number will probably more than double as high schools with typing and shorthand classes meet the vocational standards.

Vocational-Technical Education Beyond the High School

Some of the junior colleges, some of the State colleges and some high schools give vocational-technical programs for students who have completed high school or to adults who have not completed high school, but who are beyond high school age and who can benefit by the instruction offered. This study does not include vocational education of a professional level which required a baccalaureate degree. We will consider therefore only one and two year programs beyond the high school.

MAP II

LOCATION OF POST SECONDARY SCHOOLS WITH VOCATIONAL-TECHNICAL CURRICULUM


LEGEND
○ AREA VOCATIONAL SCHOOL
□ JUNIOR COLLEGE
▽ STATE COLLEGE
OPEN FIGURE INDICATES NO VOCATIONAL-TECHNICAL PROGRAMS ARE OFFERED.
DOT IN CENTER OF FIGURE INDICATES LESS THAN FIVE PROGRAMS ARE OFFERED.
SOLID FIGURE INDICATES FIVE OR MORE PROGRAMS ARE OFFERED.
SOURCE: STATE DEPARTMENT OF EDUCATION 1965-66
ST. JOSEPH
KANSAS CITY
SPRINGFIELD
JOPLIN

Map No. 2 gives the location and type of institution which offers vocational-technical curricula for students beyond the high school. Four of the six state colleges give some one or two-year vocational programs. Seven of the nine public junior colleges provide some vocational curricula. Fourteen high schools offer vocational curricula for post-high school youth and adults.

TABLE NO. 4

Vocational-Technical Education Beyond the High School
School Year 1965–66

Type of Institution	Total Number of Institutions	Number of Institutions with Post-High School Vocational Curricula					
		None	One Voc. Curric.	Two Voc. Curric.	Three Voc. Curric.	Four Voc. Curric.	Five or More Voc. Curricula
State Colleges & Universities	7	2	1	1	1	0	2
Junior Colleges	9	2	1	0	3	1	2
High Schools	528	514	9	1	1	0	3

Table No. 5 shows the enrollment in the various types of post-high school institutions by occupational categories. There is an enrollment of 2,301 vocational students in the 9 junior colleges, and 60 per cent of this enrollment is in office occupations and health services (mostly practical nurse training). The post-high school enrollment in high schools is 1,387 and 78 per cent of this enrollment is in health services (practical nurse training).

TABLE NO. 5

Enrollment in Vocational Curricula in Post-High School Programs
School Year 1965–66

Occupational Category	Type of Institution					
	State College		Junior College		High School	
	Number of Programs	Enrollment	Number of Programs	Enrollment	Number of Programs	Enrollment
Office Occupations	7	236	6	1,032	1	1
Health Occupations	1	32	1	343	11	1,080
Drafting & Graphic Arts	3	66	3	139	1	2
Industrial Technicians	0	0	2	251	0	0
Auto Mechanics	0	0	1	2	3	97
Electrical	1	25	3	68	5	71
Merchandising	0	0	1	28	0	0
Miscellaneous	4	55	7	438	3	136
Total	16	414	24	2,301	24	1,387

Table No. 3 and Table No. 5 indicate that 27,269 youth are in vocational education as full-time students, mostly in two-year programs. It is of interest to compare the persons in vocational education to the labor force in Missouri in the occupations related to the vocational categories. It is impossible to do this with a high degree of accuracy but there is some validity in the relationship as depicted in Table No. 6.

TABLE NO. 6

Relationship of Number in Full-Time Vocational Education to Number in Labor Force

School Enrollment – 1965–66; Labor Force – 1967 Estimates

Occupational Category	High School and Post-High School Enrollment	Missouri Labor Force	Ratio Number in Training to Labor Force
Office Occupations	8,295	284,519	1:34
Agriculture	7,262	150,000 *	1:20
Trade and Industry	5,645	458,225	1:81
Merchandising	2,270	147,399	1:65
Health Occupations	1,423	**	
Total	24,895	1,040,143	

* Farm Workers only

** Information not available

Vocational Education for Youth and Adults at Work

Missouri provides opportunities for those who are or have been at work to learn skills and obtain knowledge to update, upgrade or retrain themselves to become more effective in getting and holding a job. These vocational education activities can be classified as (1) Apprenticeships, (2) Evening Adult Programs, or (3) MDTA Programs (Manpower Development and Training Act Programs).

TABLE NO. 7

Enrollment in Apprenticeships
School Year 1965–66

By Occupations		By Location	
Occupation	Enrollment	City	Enrollment
Metal Working	787	St. Louis	1,182
Construction*	455	Kansas City	458
Electrical-Electronic	322	Springfield	133
Woodworking	315	Bonne Terre	91
Graphic Arts (Printing)	138	St. Joseph	62
Automotive	50	Joplin	32
All Others (5 Occupations)	119	All Others (7 Cities)	228
Total	2,186		2,186

*Does not include electrician or carpenter, which are included in electrical and in woodworking.

Apprenticeships vary from three to five years, the norm being four years. Missouri therefore graduates about 500 apprentices each year for its labor market which includes approximately one-half million in the normally apprenticed trades. Persons are being apprenticed in Missouri in fewer than twelve occupational categories. The metal working trades and the construction trades (including electrician and carpenter) account for 86 per cent of the apprenticeships. St. Louis and Kansas City account for 77 per cent of the apprenticeships in the State. The apprentice is a full-time worker who usually spends from two to five hours a week in related instruction in a school situation.

The Federal government in 1962 approved legislation establishing the Manpower Development and Training Act (MDTA), which has been continued and extensively financed. The Labor Department and the State Employment Service select the unemployed persons to be trained and determine the number and occupational category. The general supervision is within the State Department of Education. Missouri has participated in this program since its inception, and there has been 12,951 trainee positions approved in the state during the years 1963-1966. Table No. 8 gives the number of trainee positions approved for training during the year 1965-1966.

TABLE NO. 8

Trainee Positions Approved in MDTA Programs–Year 1965–66

By Occupations		By Location	
Occupation	Trainee Positions	City	Trainee Positions
Office Occupations	1,110	Kansas City	389
Metal Working	140	St. Louis	1,005
Health Occupations	411	Springfield	196
Automotive Services	312	Joplin	220
Clothing Construction	95	Marshall	75
Agriculture	195	Malden	40
Food Service	104	St. Joseph	260
Electricity	50	Hannibal	110
Drafting	80	Sikeston	82
Welding And Related	205	Cape Girardeau	90
All Others	537	All Others (18 Locations)	772
Total	3,239	Total	3,239

There is no vocational education program in Missouri as closely related to the labor market as the MDTA program. The students are all tested and counseled before being assigned to the program. The largest enrollments are in ten occupational categories. The programs are located in thirty cities and towns throughout the State. Thirty-three percent of the enrollment is in the two largest cities.

TABLE NO. 9

Vocational Enrollment in Adult Evening Classes*
School Year 1965–66

By Occupations		By Location	
Occupation	Enrollment	City	Enrollment
Office Occupation	687	St. Louis	1,205
Metal Working	684	Kansas City	361
Electrical	441	St. Joseph	225
Health Occupations	374	Springfield	170
Woodworking	119	Mexico	142
Auto Mechanics	109	Raytown	101
Graphic Arts (Printing)	101	Joplin	34
All Others	346	All Others (17 Locations)	623
Total	2,861		2,861

*This table does not include Agricultural and Related Classes. There are 31 Young Farmer Programs with 736 enrolled and 109 Adult Farmer Programs with 3,425 enrolled, or a total of 4,161 persons in Adult Agricultural evening or out-of-school hours classes.

The persons in these programs are most often adults who have very limited skills. The program is usually a full-time 6 to 8 hour per day program, not to exceed one year in length. Many of these students are functionally illiterate and are taught reading, writing and arithmetic before beginning a skill program.

Many persons in the labor market are provided vocational instruction in short-term programs, often after work hours, which have for many years been provided as a part of the standard vocational offerings. These courses in Missouri are generally called adult evening school programs. Table No. 9 gives the enrollment in these programs during a single school year. Such courses are provided in 24 locations and for more than ten occupational categories.

Vocational Education for Youth and Adults with Special Needs

Tables 1 through 9 summarize the vocational programs found in Missouri public schools for which entrance and performance standards are maintained. There are persons who have need for vocational education but who, for various reasons, are not admitted to these programs. These persons may have physical, mental or academic handicaps and cannot profit from the normal instructional programs. Some are youth not sufficiently motivated to make an earnest effort at gaining vocational skills in these programs. Programs have been provided for persons with physical handicaps but few have been established for those with mental, academic or motivational deficiencies.

Missouri has provided vocational rehabilitation for many years using State and Federal funds. In 1964-65, a total of 2,844 handicapped persons were assisted in securing gainful employment. In recent years the Division of Vocational Rehabilitation has developed a work-study program for mentally and physically handicapped youth. In 1964-65, this program involved 45 high schools and served 544 students.

The most difficult task educationally is to assist those persons who, for various reasons, are not motivated or do not have the ability to achieve in the normal vocational education program. These persons are often the culturally disadvantaged youth. The public schools, in general, have not developed the course content, the instructional methods, or the psychological approach which could successfully assist this group. Often the process would be so costly in teacher time, research and facilities that it has not seemed possible. The MDTA programs are serving many older youth and adults.

The Economic Opportunity Act of 1964 provided massive amounts of Federal funds (504 million dollars for 1964-65), most of which was to be used to assist disadvantaged youth and adults. The programs under this act are financed almost completely by Federal funds and operated by or under contract with the Federal government. The following summary indicates the status of this program in Missouri as of April 1, 1966.

Activities of the Economic Opportunity Act Program in Missouri Related to Vocational Education–April 1966

1. Neighborhood Youth Corps Projects

73 projects
37,586 youth enrolled
$11,973,448 funds approved

This program provides funds to assist government agencies (generally schools) in employing youth on a part-time basis in order to help keep them in school. Some of these students are in vocational programs. Most of these youth are high school students but $1,272,000 was awarded to 33 colleges.

2. Job Corps Centers. Three have been approved in Missouri with Federal contracts amounting to $9,638,000.

The enrollees now number 258, mostly from outside of Missouri.

3. Basic literary training. Over $600,000 has been approved in 46 projects, now serving 3,478 persons.

4. Work experience programs. Two projects have been approved (St. Louis and Kansas City) to provide 1,200 jobs as work experience for youth.

The OEO activities are often unique and are not circumscribed by traditions or state education laws and policies. Such massive funds have never before been available to develop programs of this kind. These programs are costly, but if they result in the development of activities which motivate, and adequately serve people who have never before been economically sufficient, they may prove to be good investments.

The Federal Vocational Education Act of 1963 encourages public schools to develop programs for Youth with Special Needs. A few high schools in Missouri have developed vocational training programs specifically for youth who cannot be served in the regular programs. The number of youth enrolled in these programs, even though few, is a commendable beginning. Such programs developed and operated by local school districts are vastly less expensive than the Federal programs.

Ancillary Services for Vocational Education

Certain ancillary services are necessary if vocational educational is to perform effectively. These services may be categorized as (1) teacher education, (2) curriculum development and the preparation of instructional materials, (3) guidance counseling and providing occupational information, (4) research, and (5) administration and supervision.

Teacher Education

Vocational education provides instruction for a great variety of occupations. These many occupations require a vast number of different skills to be taught and knowledge to be learned. Teachers for many of these classes are not produced by the traditional teacher training programs. Teachers are now being trained by the Missouri state colleges and the University of Missouri in business education (office occupations), distributive education (merchandising and sales), and agriculture. Teachers for some occupations are recruited from closely related educational programs and with a minimum of pedagogical training they may become certificated teachers. As an example, medical service occupation teachers often come from medical or nursing education and technicians for some occupations from engineering education.

Teachers for the construction trades, mechanical occupations and many service occupations have no college program available from which they can obtain the skills required for these occupations. Teachers for many occupations are, therefore, recruited from the business and industry where these services are performed. Many of these workers have not had extensive educational experiences. Pedagogical preparation of such persons cannot be a traditional college program. The practice of training vocational teachers in Missouri is consistent with the practice for such teacher education in other states. Trade skills and proficiency are determined by observation and recommendation. Pedagogical skills are taught in University summer school classes. In addition, itinerant teacher trainers from the University of Missouri provide classes in various locations within the State and during the school year. At its best this teacher training program may not produce teachers as effective as vocational education must have.

The University of Missouri, College of Education, Department of Industrial Education, has a national reputation for its leadership development and research. Most of its students with advanced degrees are lost to the State because of greater professional and financial opportunities elsewhere.

Curriculum Development and the Production of Instructional Materials

The uniqueness of vocational education programs compared to academic courses and the relatively smaller numbers of students do not provide the normal motivations for the production of instructional materials and their organization into a curriculum. Two other factors contribute to the need for such materials: (1) automation and mechanization of business and industry produce an ever changing need for updating or developing new instructional materials and (2) often teachers of vocational education subjects have less pedagogical training or experience and, therefore, have a greater need for help from organized instructional materials.

The University of Missouri participates in a joint effort with the State Department, Vocational Education Division, in the development of curricular materials. Curricular materials have been developed for over 40 occupations but are adapted largely to cooperative vocational education.

Guidance, Counseling and Occupational Information

Guidance and counseling services are available in the larger high schools of the State and in some of the smaller schools. They are provided in a formal schedule and by trained persons. Much of this service is directed toward academic courses and college entrance. Two high school principals reported that any vocational subject taken by any competent student was taken "in spite of the counseling."

The guidance and counseling specialists in the State Department of Education are a part of the staff of the Division of Vocational Education. This should provide good understanding of vocational education problems. Effective vocational counseling is a difficult problem everywhere and it does not appear to have been effectively solved in Missouri. The sparseness of the vocational programs, however, may explain much of the ineffectiveness of the counseling.

The occupational information available is that produced on the national level and is usually related to the professions and very general in nature. Much must be done to provide the counselor with effective materials. For vocational education to assist the State of Missouri significantly, extensive studies must be made of the production and service skills needed in Missouri. The findings of these studies must be translated into educationally usable information and channeled into the decision-making processes of the State's educational planning.

Research

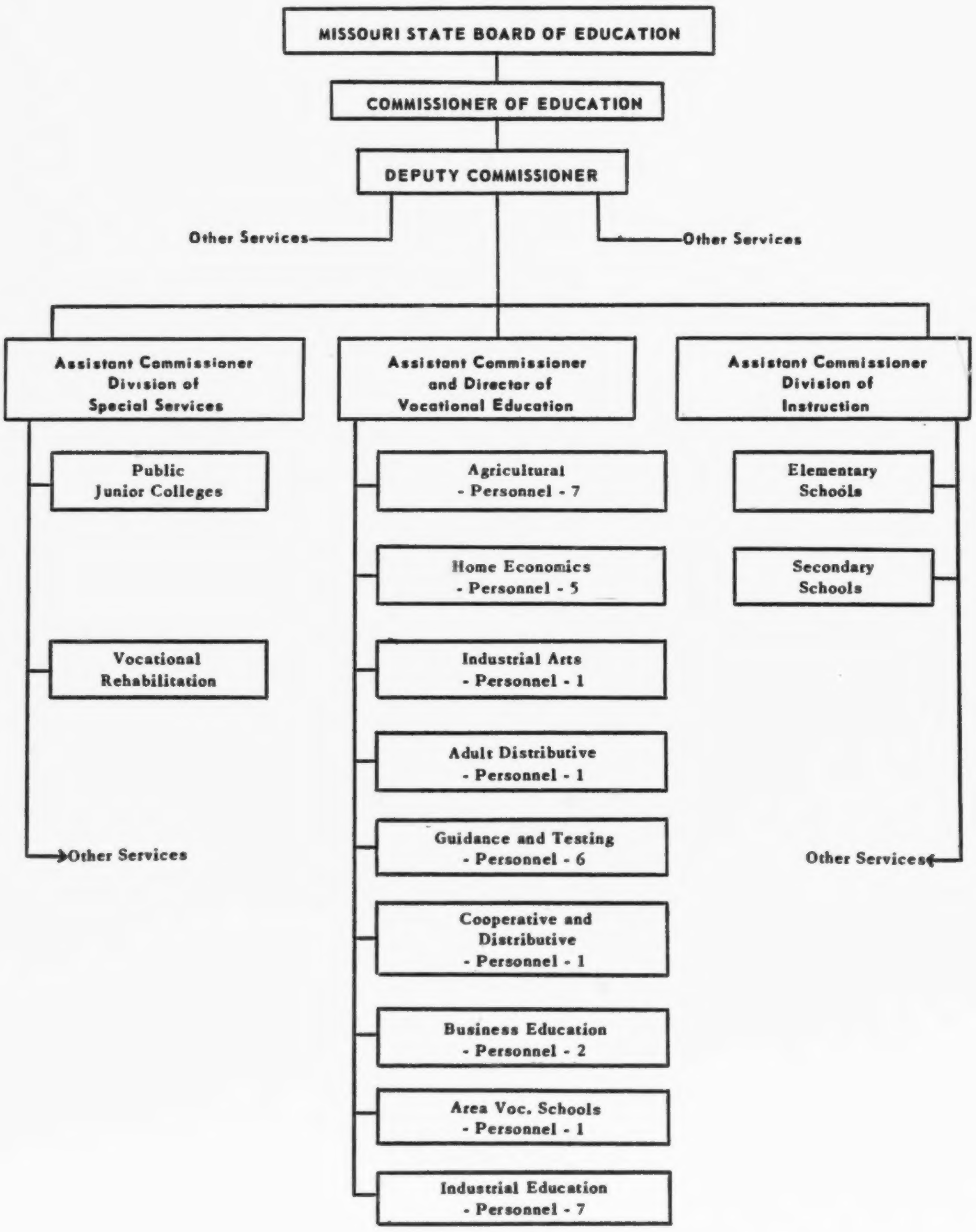
Research activities related to vocational-technical education have been centered in the University of Missouri. Practically all the research has been produced by graduate students writing doctoral theses. Until recent years very little money has been available. The Federal government now provides large sums of money for research.[10] A Research Coordinating Unit has been approved and financed by the U. S. Office of Education within the Missouri State Department of Education, Vocational Division. This activity should result in considerably more research in the future. Research, evaluation and program development activities must be greatly expanded if more effective services are to be achieved.

---

[10] Public Law 88-210, Sec. 4 (c), $18,000,000 for 1965-66.

CHART I

ADMINISTRATIVE RELATIONSHIPS AND PROFESSIONAL PERSONNEL
DIVISION OF VOCATIONAL EDUCATION
STATE DEPARTMENT OF EDUCATION, 1965–66


MISSOURI STATE BOARD OF EDUCATION
COMMISSIONER OF EDUCATION
DEPUTY COMMISSIONER
Other Services
Other Services
Assistant Commissioner Division of Special Services
Assistant Commissioner and Director of Vocational Education
Assistant Commissioner Division of Instruction
Public Junior Colleges
Vocational Rehabilitation
Other Services
Agricultural - Personnel - 7
Home Economics - Personnel - 5
Industrial Arts - Personnel - 1
Adult Distributive - Personnel - 1
Guidance and Testing - Personnel - 6
Cooperative and Distributive - Personnel - 1
Business Education - Personnel - 2
Area Voc. Schools - Personnel - 1
Industrial Education - Personnel - 7
Elementary Schools
Secondary Schools
Other Services

Administration and Supervision

Within the Missouri State Department of Education there is a Division of Vocational Education with an Assistant Commissioner of Education as its director. This Division provides the administration and supervision of vocational education on a state-wide basis. It is organized with relationships and personnel as indicated in Chart I. It can be seen that there are nine sub-divisions or sections in the Vocational Division with 32 professional personnel.

The junior colleges and high schools in which the vocational education courses are operated are under the administrative and supervisory responsibility of other assistant commissioners. This is a normal situation in most states. It requires understanding and cooperation between the several divisions in addition to recognition of certain inherent problems. This organization appears to be working in a satisfactory manner in Missouri. For the present activities, the personnel and the relationships appear, in general, to be satisfactory. If, however, vocational education's services are to be expanded and increased effectiveness developed, additional staff, additional professional skills and certain reorganization are desirable.

Qualitative Factors in Vocational Education for Missouri

The foregoing description of the existing program of instruction in the State of Missouri is quantitative. It was not possible to develop a qualitative study of equal coverage and similar validity. There are recorded in the Supplementary Report of this study some reviews of research, studies in vocational education and certain case studies which provide considerable information for qualitative analysis. Because studies of this nature are of such a "here and there, now and then" nature, it is not possible to organize the information to provide comprehensive support for highly reliable evaluative statements. The study staff, however, believes the following statements are logical and reasonably accurate statements concerning qualitative elements of vocational education services in Missouri.

The Availability of Vocational Education Programs

Vocational education must be available to be of service. The quantitative element thus also becomes a qualitative factor. Previous data indicate that about 23,000 high school students in grades 11 and 12, or about 21 per cent of the students in these grades, are taking vocational courses. This would be similar to many other states. However, 37 per cent of the high schools offer no vocational programs, and an additional 53 per cent provide a very limited choice of not more than two curricula.

Twenty-two per cent of the junior colleges provide no vocational programs. Fifty-five per cent offer from one to four programs and only 22 per cent provide more than four vocational curricula. With only nine public junior colleges in the state, vocational education in the junior colleges would not be readily available to all the population.

The junior colleges in Missouri appear to have been, traditionally, college transfer, liberal-arts-curriculum, institutions. There is no evidence that their leadership had accepted vocational education objectives. The relatively new junior college district of St. Louis City and St. Louis County has a leadership both committed to, and experienced in, vocational-technical education. Buildings are being constructed and curricula developed to serve youth and adults with vocational education needs. The junior college district of Kansas City is an old institution which has never had an extensive commitment to vocational education services. Its present administration appears to be willing to accept such objectives. A staff is to be selected with vocational education experience and competencies.

The junior college districts of St. Louis and Kansas City, with their six or more campuses and their metropolitan populations, are in a position to serve a major portion of the people of Missouri. Their present programs have not been developed to an extent where they can be evaluated. What has been done and is being done appears to be good. What has not been done is enormous.

Adult programs available to persons in the labor market are distributed through 38 locations within the state. More than 15 occupational categories are served with probably more than 50 different courses offered.

The Diversity of Vocational Education Programs

The diversity of the vocational programs at all levels (high schools, junior college and adult) includes the traditional occupations, with very little evidence of studies made to search for the new, the unique or pioneering programs. This deficiency might easily be explained by lack of funds and the lack of leadership time and "know-how" related to other than the traditional occupational areas.

Evidence of Quality Vocational Education Programs

How "good" is the program of instruction? This is a reasonable and normal question. It is, however, a very difficult one. A proper answer would require a knowledge of teacher competency, extent and nature of equipment, student selection, and student achievement in skills and knowledge. The experience of students in getting and succeeding on a job would be a major relevant factor.

National studies indicate that from 60 to 85 per cent of vocational program graduates obtain a job related to their training and succeed in holding and being promoted in such a job.[11] A recent study by the American Institute for Research[12] was made of a random selected group of high school graduates of 1953, 1958 and 1962. These students represented all major regions of the country and various types of high schools. This is the most extensive and valid study of the success of vocational high school graduates completed to date. The findings include:

(a) About 30 per cent of these youths secured their first jobs in the particular trades of their vocational study.

(b) Vocational graduates obtained their jobs in less time than academic graduates.

(c) There was significantly greater employment security of vocational graduates over academic graduates.

(d) When education of the whole person is defined in terms of conversational interests, leisure activities and affiliation with community organizations, there is evidence which suggests that vocational graduates have been as well educated as academic graduates.

A study of post-high school educational and occupational experiences of two St. Louis high schools[13] was made by a University of Missouri graduate student in 1964. The data indicates that about 75 per cent of the vocational technical graduates work in the trade for which they were trained, and that they were able to obtain employment more quickly than academic graduates.

---

[11] See: EDUCATION FOR A CHANGING WORLD OF WORK, pp. 90–100.

[12] Eninger, Max U., THE PROCESS AND PRODUCT OF TRADE AND INDUSTRIAL HIGH SCHOOL LEVEL VOCATIONAL EDUCATION IN THE UNITED STATES. American Institutes for Research, Pittsburgh, Pennsylvania, 1965.

[13] Andre, Nevin E., POST-HIGH SCHOOL EDUCATIONAL EXPERIENCES AND OCCUPATIONAL STATUS OF GENERAL-ACADEMIC AND VOCATIONAL-TECHNICAL HIGH SCHOOL GRADUATES. Unpublished Doctoral Dissertation, University of Missouri, Columbia, Mo., 1964.

Several hundred superintendents (458) and school board members (322) were asked the question, "Do you think your present vocational program adequately serves the occupational needs of youth and adults in your community?" The answers can be summarized as follows:[14]

Response	For High School Graduates	For High School Dropouts	For Adults
Yes	9%	4%	7%
No	79%	85%	75%

This very general dissatisfaction with vocational education services in the high schools of Missouri by those who have the direct responsibility for these programs is certainly a severe criticism. These studies indicate that vocational education is not a completely successful experience in Missouri.

The members of the staff of this study visited many schools. Our observations, based on experienced professional judgment, rather than objective duplicatable evidence, would justify the following statements:

(a) If the good practices which exist in some Missouri schools were extended to all schools in Missouri, the effectiveness of vocational education services in Missouri would be increased by several hundred per cent. To extend these effective practices would require more extensive financing. However, money alone would not provide these better practices. The greatest need would be professional "know-how."[15]

---

[14] Karnes, James B., EMERGING PROGRAMS OF VOCATIONAL AND TECHNICAL EDUCATION IN SECONDARY SCHOOLS OF MISSOURI IN RELATION TO MANPOWER NEEDS. P. 53 Unpublished Doctoral Dissertation, University of Missouri, Columbia, Mo., 1966.

[15] See: Supplemental Report: Case Studies, One to Six.

(b) There are many examples of insufficient equipment and facilities.

(c) There are examples of teachers who are not competent in their instructional assignment.

(d) There are superintendents, principals and teachers who consider vocational education of less importance than academic subjects, and who consider all who participate in vocational education as "second-class" school citizens.

(e) Growth and change is taking place. Much of the growth and change is the result of excellent planning and has resulted in effective operation. Some of it lacks proper leadership and effective results are doubtful.

Summary of Study Conclusions

This study has found that vocational-technical education in Missouri is, in general, neither appreciably better nor worse than such educational programs in other states. Missouri is expanding vocational education into more schools and for more occupations. Its potential power -- to improve the welfare of people, to help in the expansion of business and industry in production and services, and to improve the economic level of the State -- is far from being realized. It will require a major increase in recognition of its importance, a greater commitment of knowledgeable manpower and a larger financial investment by the State if major achievements are to be made.

Strengths of Vocational Education Services in Missouri

There exist in Missouri vocational education programs which are comparable to the best programs in the country.

These exceptional programs exist because of local school district superintendents, school boards and vocational directors who have the interest, knowledge and willingness to pioneer and work to provide such services. If the best practices in some Missouri schools could be made general practices in all Missouri schools, vocational education services would be improved many-fold.

The State Department of Education has for many years had a Division of Vocational Education staffed by trained and experienced persons. These professional people have worked conscientiously and earnestly to provide direction, maintain quality standards, and encourage local school districts who have the desire and the personnel to establish and operate vocational education programs.

The University of Missouri has a national reputation for its work in industrial and agricultural education. It has attained particular strength in its program of research and leadership training. Many of its graduates are lost to the State because of greater professional and financial opportunities elsewhere.

Weaknesses of Vocational Education Services in Missouri

The major weaknesses of vocational education are both quantitative and qualitative. There are not enough vocational education programs in the schools of Missouri. Many high schools (37%) offer no vocational education programs and another large proportion (36%) offer only one vocational curriculum. Many of these are small high schools. But even 50% of the high schools with an enrollment of 500 or more offer either none or only one vocational program. This means that a very large percentage of all the youth who attend high school in Missouri either have no vocational curriculum choice or a choice between business education (office occupations) or agriculture. The State needs persons to be trained with skills and knowledge for many occupations.

The availability of vocational-technical education beyond the high school is considerably less than at the high school level. There are only nine public junior colleges. Almost one-fourth of these schools provide no vocational curricula. Of the 2,301 junior college students enrolled in vocational curricula, 40 per cent were in office occupations or practical nursing. The numbers enrolled and the diversity of the curricula offerings are far from sufficient to meet the needs of the state.

Many junior colleges of Missouri appear to have very little interest in vocational education and at times do not consider it an obligation of their institution. The study staff received the impression from some junior college personnel that if they did offer vocational curricula they would consider the participating students and faculty as "second-class" citizens in their institutions.

With the extensive mechanization and automation of production and services, the need for workers with intensive skills and extensive knowledge is crucial. These technicians require more extensive training and more maturity than is normal for high school students. The encouraging feature in Missouri for such training is the development of the junior college program in St. Louis and St. Louis County. This institution has a staff with knowledge, experience and commitment to a diversified vocational-technical curriculum. This junior college district serves more than one-third the population of the State. With adequate financial assistance from the State, the people and industry in this area will have extensive vocational-technical education opportunities. The junior college in Kansas City is an older institution which in the past has had a commitment only to the liberal arts curriculum and the teaching profession. Its new organization has a strong verbal commitment but has many problems to solve in staff knowledge, experience and interest before even financial assistance will provide an adequate diversified vocational-technical curriculum.

Short-term and part-time vocational education programs are distributed throughout the state. Two-thirds of all the persons served in these programs are in agriculture. Yet only a small percentage of the employment in the State is now in agriculture. This does not necessarily mean too much training is provided for agriculture but it does indicate that far too few persons are being aided in the many other occupations in Missouri. Much of the training that is being provided is financed by the Federal government and is generally considered a "stop-gap" temporary program, remedial in nature.

Vocational education for youth with special needs is very limited except for the physically and mentally handicapped. Vocational education has not been used to reach the unmotivated or as a means to provide economic security for the culturally disadvantaged.

CHAPTER III

PROGRAM OPERATION RECOMMENDATIONS

The objective of this study is to make recommendations to improve the vocational-technical education services in Missouri. The emphasis will be on the type of services to be provided and the staff necessary to provide for these services within the State Department of Education. Concurrent with this study of vocational education is another study on the organization, structure and financing of schools and junior colleges in Missouri. This study was conducted by the Academy for Educational Development, Inc. A report of the latter study was made to the Missouri Governor's Conference on Education. A continuing dialogue was maintained with the staff of the Academy for Educational Development. We express appreciation for the cooperation and assistance which this group extended.

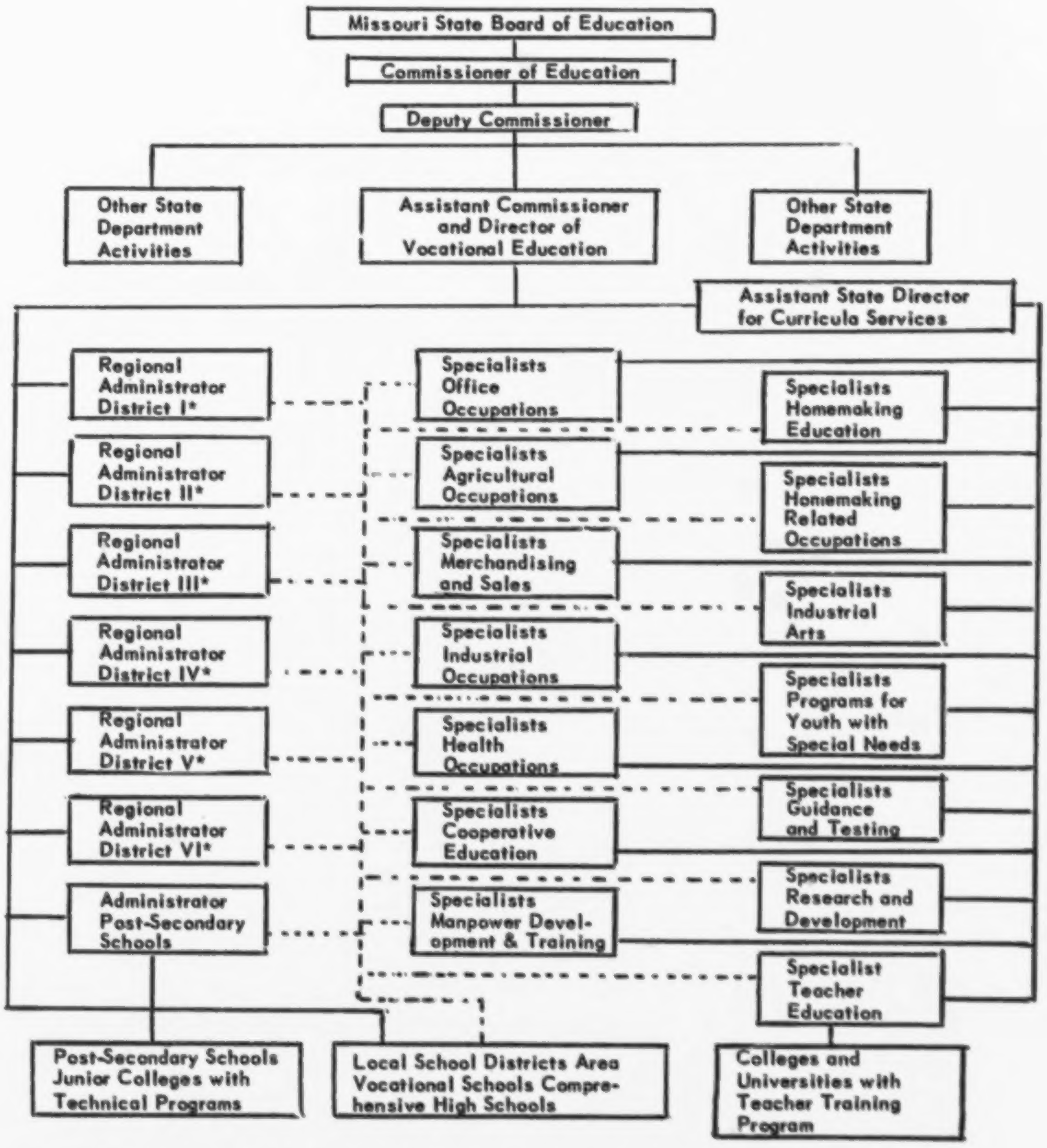
Some statements will be made concerning the financing of an expanded program. Since the financing of such a program was not part of the commission of this study, it will be necessary to translate the services suggested into the State's program for financing its schools.

Organization for the Administration and Supervision of Vocational-Technical Education in the Missouri State Department of Education

There cannot be effective or efficient vocational-technical education services in the State of Missouri unless there is vigorous, dynamic and knowledgeable leadership at the State level. The vocational education services which are visualized in this study will require many new and different kinds of programs. This will require more professional staff within the State Department of Education and some personnel with skills not now available. Rigorous standards will have to be established and maintained for all the programs. The criteria for effective vocational programs are closely related to natural laws and cannot be compromised without decreasing the efficiency or effectiveness of vocational education services to the State.

It is recommended that the present Division of Vocational Education be reorganized and expanded as indicated in Chart II.

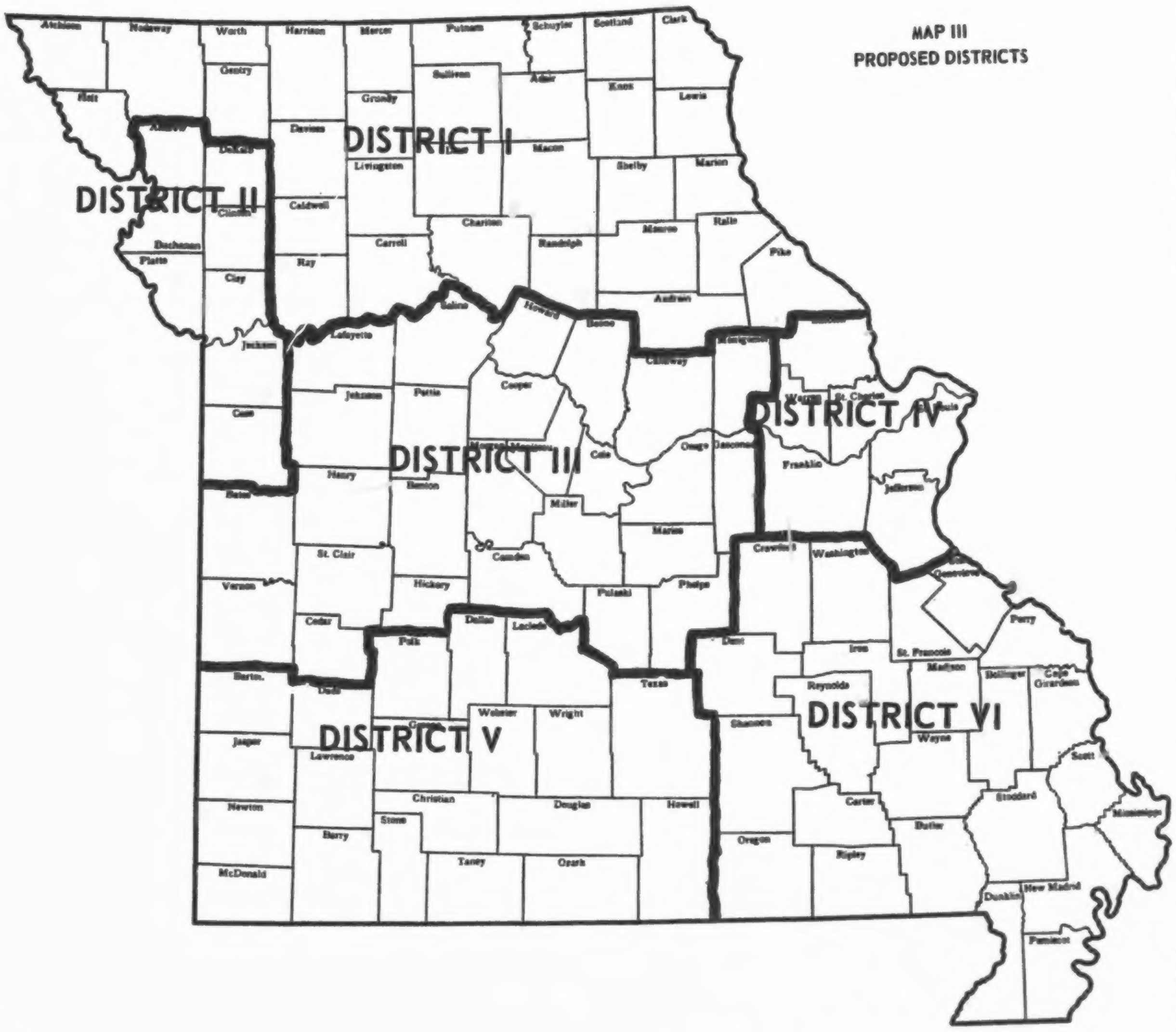
CHART II
SUGGESTED ORGANIZATION CHART
FOR
DIVISION OF VOCATIONAL-TECHNICAL EDUCATION


Missouri State Board of Education
Commissioner of Education
Deputy Commissioner
Other State Department Activities
Assistant Commissioner and Director of Vocational Education
Other State Department Activities
Assistant State Director for Curricula Services
Regional Administrator District I*
Regional Administrator District II*
Regional Administrator District III*
Regional Administrator District IV*
Regional Administrator District V*
Regional Administrator District VI*
Administrator Post-Secondary Schools
Specialists Office Occupations
Specialists Agricultural Occupations
Specialists Merchandising and Sales
Specialists Industrial Occupations
Specialists Health Occupations
Specialists Cooperative Education
Specialists Manpower Development & Training
Specialists Homemaking Education
Specialists Homemaking Related Occupations
Specialists Industrial Arts
Specialists Programs for Youth with Special Needs
Specialists Guidance and Testing
Specialists Research and Development
Specialist Teacher Education
Post-Secondary Schools Junior Colleges with Technical Programs
Local School Districts Area Vocational Schools Comprehensive High Schools
Colleges and Universities with Teacher Training Program

*See: Map No. 3 and Table No. 10 for description of Districts

It is suggested that the name of the Division be changed to the Division of Vocational-Technical Education in order to establish the fact that a major phase of vocational education is post-high school education requiring more intensive skills and more extensive knowledge.

It is suggested that the functions of administration and occupational specialist be separated and recognized as line and staff positions. It is suggested that the State be divided into six districts (See Map No. 3 and Table No. 10) with an administrator for each district. It is suggested



MAP III
PROPOSED DISTRICTS

DISTRICT I
DISTRICT II
DISTRICT III
DISTRICT IV
DISTRICT V
DISTRICT VI
Atchison
Nodaway
Worth
Harrison
Mercer
Putnam
Schuyler
Scotland
Clark
Gentry
Sullivan
Adair
Knox
Lewis
Holt
Grundy
Daviess
Livingston
Macon
Shelby
Marion
Caldwell
Clinton
Buchanan
Platte
Clay
Ray
Carroll
Chariton
Randolph
Monroe
Ralls
Pike
Audrain
Saline
Howard
Boone
Callaway
Montgomery
Jackson
Lafayette
Cooper
Johnson
Pettis
Cass
Warren
St. Charles
Cole
Osage
Gasconade
Franklin
Jefferson
Henry
Benton
Miller
Bates
Maries
St. Clair
Camden
Crawford
Washington
Vernon
Hickory
Pulaski
Phelps
Cedar
Dallas
Laclede
Polk
Dent
Iron
St. Francois
Madison
Bollinger
Cape Girardeau
Perry
Barton
Dade
Texas
Reynolds
Webster
Wright
Shannon
Wayne
Jasper
Lawrence
Scott
Christian
Douglas
Howell
Carter
Butler
Stoddard
Mississippi
Newton
Stone
Barry
Oregon
Ripley
Taney
Ozark
McDonald
Dunklin
New Madrid
Pemiscot

TABLE NO. 10

Proposed Vocational Education Administrative Districts

Administrative Districts	Population (1960 Census)	Number of High Schools	Enrollments, 1965-66	
			Grades 9 - 12	Grades 11-12
District I (Northern Missouri)	433,500 31 Counties	118	23,226	11,009
District II (Western Missouri)	873,300 8 Counties	58	51,569	23,195
District III (Central Missouri)	503,500 26 Counties	108	28,864	13,629
District IV (Eastern Missouri)	1,641,000 6 Counties	61	80,712	36,351
District V (Southwest Missouri)	465,100 20 Counties	95	31,855	14,914
District VI (Southeast Missouri)	439,000 23 Counties	88	29,514	13,353

that a seventh administrator be assigned to the post-secondary schools (junior colleges and colleges). These district administrators could either have their offices located in the districts to which they are assigned or in the State Department of Education in Jefferson City. There are certain advantages and certain disadvantages to either arrangement. The districts which are suggested (see Map No. 3 and Table No. 10) are not vital but are given in order to demonstrate the type of organization and the desirability of some homogeneity.

The occupational specialists should be persons with extensive training and experience in the occupation to which they are assigned. They should evaluate programs, teacher competence and instructional materials in their occupational categories. They should maintain contact with the workers and management in their occupation. They should be consultants to local school districts. Other specialists should be brought into the Division of Vocational-Technical Education on a temporary basis to perform certain curriculum development or instructional materials production duties. Not all the specialists need be permanent members of the staff.

It is recommended that salary schedules be developed which will attract and hold persons competent to do the assigned tasks and merit the respect of the field persons with whom they must work. These salaries must be competitive with the salaries paid for similar services.

It is recommended that there be established in the research section a staff to make evaluative studies within the State, to review studies made in other states and make the resulting information available to the professional educator within the State, to the State Department of Education staff, to the state administration, to the legislature, and to the public. If the proper decisions are to be made in relation to vocational-technical education within the State, more people in the state must know more about vocational education. In particular, more people must understand the nature of vocational education services and the potential of its effect on the social well-being of the people and on the economic well-being of the State.

It is recommended that a state vocational-technical education advisory committee be established and used extensively. This committee should include representation from education, labor, management, legislature and state government. This committee should review all activities of the Division of Vocational-Technical Education and advise concerning program development and achievements.

It is recommended that the State Department of Education, Division of Vocational-Technical Education, immediately establish with the University of Missouri at least ten internships to develop leadership for vocational education. These internships should be for high school, junior college and/or industrial personnel who have leadership potential. The internship should include administrative and supervisory experiences with state and local school district personnel and courses of instruction at the University. The intern's full salary and all extra costs should be paid during the period of the internship. The period of the internships should be at least one calendar year. The intern should be on leave from a school or from the State Department of Education and should be required to return to his former institution for at least two years or refund to the State the expenditures for his intern experience.

Vocational Education in the High Schools

There is a need for additional vocational education courses in more high schools in the State. This becomes difficult in many high schools because of their small size. Every effort should be made to decrease the number of small high schools.

It is recommended that the comprehensive high school be given the first priority in the development of vocational programs in secondary schools.* It is impossible to provide quality vocational instruction in small high schools except at very high costs. No high school should be considered a comprehensive high school unless it maintains a minimum of four different vocational programs. Most high schools large enough to become a comprehensive high school can justify vocational courses for the following occupations: office occupations, auto mechanics, electrical and electronics, merchandising and sales, and in rural areas, agriculture. These programs should be for three hours per day and for two years. The students should acquire sufficient skills and knowledge for entrance into some job related to his training. These skills and knowledge should also serve as a foundation for entrance into struction in a junior college, an apprenticeship or entrance into the armed services.

---

*See LOOKING AHEAD TO BETTER EDUCATION IN MISSOURI, Academy of Educational Development, paragraph 3, page 51.

It is recommended that vocational education begin at the 11th grade. Industrial arts, homemaking, typing and other practical arts courses should be pre-vocational and serve as a guidance function for youth in lower grades.

The initial expansion of the vocational programs should take place in the high schools which now have some vocational programs and can prove that there are other students who would enroll in added vocational courses. These schools have already demonstrated their ability to operate such programs and the leadership and experience is available. This priority would produce additional trained persons more quickly than any other plan and for considerably less money. Consideration should be given to renting space for such programs until buildings are available on the school site.

St. Louis

Special attention should be given to the major metropolitan areas of St. Louis and Kansas City. St. Louis has for many years had a school with a national reputation as an effective vocational education institution (Hadley Technical School, now O'Fallon Technical School). It now has serious problems which are largely social and not educational. Each high school in St. Louis should be a comprehensive high school providing four or more vocational curricula. St. Louis city schools should have a director of vocational education reporting directly to the superintendent of schools. The many unique features of vocational education require that the superintendent and the school board obtain information directly from such a specialist if they are to make the most effective decisions.

O'Fallon Technical School should continue to operate as an area vocational school for the city. It should also be available as an area vocational school to students from outside the city in cases where there are unused student training stations. The city schools should be reimbursed so that there is no cost to the local school district for out-of-district students. This practice should in no way compete with the St. Louis County area vocational schools. Consideration should be given to allowing half day enrollment in O'Fallon, thus permitting a student to retain his membership in his residential area high school. The justification for half-day attendance in a vocational school and retaining membership in the students' high school of residence is discussed in the last paragraph of the next section.

St. Louis County

St. Louis County has 26 high schools. They can be classified according to size as follows: (1965-66 School Year Enrollment)

Size of School (Enrollment - Grades 9-12)	Number of High Schools
Less than 500	4
500 to 1,000	4
1,000 to 2,000	8
More than 2,000	10

There are very few vocational courses in the St. Louis County secondary schools. There should be four or more vocational programs in all of these high schools with enrollments of more than 1,000 students. St. Louis County Special School District which now operates programs for handicapped children is establishing area vocational schools to serve the county. They are planning several locations and are developing a program in which they expect students to transfer their membership from their residential area high school to full-day attendance at these area schools. They are now planning for an enrollment of about 1,500 by the school year 1969-70. Area vocational schools in such a populous county and for such an enrollment are desirable.

Two factors should be given careful consideration as these schools are placed in operation. First, such a program should not be developed in lieu of the comprehensive high school. There is a very significant social value in youth attending high schools where interests are heterogeneous. A community may benefit appreciably when the future doctors, lawyers, plumbers, salesmen, electricians and office workers have developed friendships and earned the respect of each other during high school days. It is also possible to operate effective programs in schools of this size for many of the basic vocations, including office occupations, merchandising and sales, auto mechanics, and electricity. Second, careful consideration should be given to the possibility of a one-half day program rather than the full day program. The specialized vocational school in the United States has, in general, been unable to avoid being classified as a lower socio-economic level institution. In many cities where it has been in operation, it has become a "dumping ground" for the incompetent, the unruly or the unmotivated. With the present concern of our society to break "the tragic cycle" of low economic growth and unemployment, there is great concern regarding any institution which may be accused of limiting the social or economic horizon of its students. It may be quite difficult to get parents, teachers or students to accept a complete transfer from the school which serves their friends and neighbors. If the program is developed on a half-day basis, the area school becomes simply a shop or laboratory of their residential school which is located in another area of the city. As a student they can participate in social and extra-curricular activities with neighbors and friends in their home school.

Kansas City

Kansas City has a director of vocational education reporting directly to the superintendent. Their city vocational school is being completely rebuilt and refurbished with extensive site redevelopment and general redevelopment of the area of the school. This Technical Training Center is to maintain a program for high school students on a half day schedule with transportation to and from their residential school.

This area vocational school should not be permitted to hinder the development of comprehensive high schools with at least four vocational programs in each school. Each of Kansas City's eleven high schools should have such a diversified curriculum.

Kansas City Metropolitan Area

There is an extreme lack of vocational programs in the metropolitan area outside of Kansas City.

The high schools of Clay and Jackson Counties outside of Kansas City can be classified as follows: (Enrollments, 1965-66)

Size of School (Enrollment, Grades 9 - 12)	Number of High Schools
Less than 250	5
251 to 500	0
501 to 1,000	6
1,001 to 2,000	6
More than 2,000	1

There should be four or more vocational programs in each of these high schools with more than 1,000 students. There should be some programs in each of the other high schools with the exception of the five high schools with less than 250 students.

A high school in Clay County, one in Cass County and the Technical Training Center in Kansas City should be designated area schools to supplement the comprehensive high schools.

The Small High School

It has been stated that it is either impossible or very costly to provide vocational education instruction for students in small high schools. This does not mean, however, that it is not desirable to serve these students. The most satisfactory method in use at the present time is the area vocational school. Such schools are discussed in the next section of this report. Two other plans have been developed and used with some success and at a cost which is not excessive. These plans have limitations, however, and should be used carefully.

"Work-study" programs have been effectively used in small high schools in some states. These programs have often been called Diversified Occupations or "D.O. Programs." Here a student spends one-half day in school and one-half day on a job. Missouri has many such programs in larger high schools which are known as Cooperative Occupational Education or "C.O.E. Programs." A student is employed on a one-half day, or fifteen hours per week, schedule for which he is paid and for which he must provide certain services. A teacher-coordinator secures the jobs for such students and gives them some supervision on the job. The employer promises to provide the student work opportunities which result in a learning experience. The teacher-coordinator assists the student and the employer in making the program economically satisfactory for the employer and a vocationally adequate experience for the student. The teacher-coordinator also provides classroom instruction several periods per week, related to the on-the-job experience. In the very small high school a teacher might serve two, or possibly more, schools. The shop or laboratory for such instruction is thus provided by the businesses and industries of the community.

It is recommended that small high schools be considered for locating "cooperative occupational education" programs. The most difficult problems associated with the small high school are to recruit teachers, to establish and operate such programs, and to secure adequate work stations.

Mobile shops and laboratories have been used in some locations. Such programs have rarely proved successful and can be costly in equipment and teacher personnel. If this method is used it should be done on an experimental basis and carefully evaluated before it is extended.

Area Vocational Schools

An area vocational school is defined as a school which provides diversified vocational curricula to students from a whole state or from certain regions within a state. Federal legislation which provides a financial subsidy for such schools specifies that such a school must offer vocational programs for at least five different occupations. In practice a vocational school which serves more than one high school may be considered an area vocational school. Such a school may be a part of a comprehensive high school. The area vocational school is a relatively recent development. It usually serves students from a radius of not more than 30 miles and for the one-half day they spend in the shop or laboratory. The student, therefore, remains an enrolled student in his residential high school. The area vocational school in reality serves as a concentration of shops and laboratories for the high schools contributing students.

2

The area vocational school must be used very carefully and rigid criteria must be followed if it is to perform satisfactory vocational education services. Missouri has already designated 30 high schools as area vocational schools. A number of these schools are not yet operating as area vocational schools and some may experience severe difficulty in meeting criteria for an effective area vocational school.

It is recommended that Missouri establish and operate area vocational schools according to the following criteria:

1. The school maintain a minimum enrollment of 300 high school students and a minimum curriculum of ten different vocational programs.

2. It serve an area of not more than 30 miles in radius.

3. It maintain a staff of teachers with extensive occupational experience and adequate training for their assignment.

4. The principal or director be uniquely competent for such an assignment. It is suggested that several of the internships suggested previously be reserved for persons to be assigned to leadership of these schools.

5. The students admitted to area schools provide evidence that they have the ability, the aptitude, and the motivation to succeed in the programs they choose.

6. A student be dropped from the program and returned to the high school in his residential area if his progress is not satisfactory.

7. The school offer post-high school instruction for occupations in which it has adequate facilities and

competent staff and develop such facilities and recruit such staff when economic need, sufficient number of students and lack of such program exist.

8. It offer short-term and part-time instruction for youth and adults already in the labor market under conditions listed in item seven.

It is recommended that the State finance construction of the buildings, purchase of equipment, and operation of that part of the program which can be prorated for out-of-district students.

The reason for this is to prevent the local school district taxpayer from bearing the financial burden of students who do not live within the local school district.

The area vocational school should be considered an especially high quality vocational school to provide instruction for job skills vital to the expanding economy of the State. It may be practical and financially desirable for an area vocational school to be operated as part of a junior college program. The area vocational school will be particularly important in metropolitan areas where there are large numbers of youth and the possibility of need for many jobs.

Vocational-Technical Education Beyond the High School

In the period of mechanization and automation, jobs which require intensive skills and extensive knowledge constitute a part of the employment market which is growing most rapidly. Training for these jobs demands more time and a greater maturity than that possessed by high school youth. A logical institution for such education is the junior college. Missouri has only nine public junior colleges and most of these provide little vocational education.

There should be additional junior colleges in Missouri. It is particularly important to develop these services in the more populous areas of the State where both students and jobs occur in large numbers. The junior college should be a community institution with a diversified curriculum providing many educational services. The major services should be (1) a liberal arts curriculum for students who may wish to transfer to a four year college, and (2) a vocational-technical curriculum to prepare students for employment. The junior college should be operated by a local school district and be financed basically by the local district. Junior colleges should, however, have major financial aid from the State.

It is recommended that the junior colleges in St. Louis, Kansas City, Joplin, St. Joseph and Jefferson County be recognized as area vocational schools and that financial assistance be given to make vocational education services available in these institutions to students from any part of the State and at no cost to the local school district operating the school. Such financial assistance should be available to other junior colleges as they develop diversified vocational curricula.

The junior colleges should recognize the post-high school instruction provided by the area vocational schools in their locality and not duplicate instruction already provided. Consideration should be given by the junior colleges to recognize post-high school instruction in the area vocational schools and to accepting those courses which meet reasonable standards to apply toward an associate degree.

No junior college should be subsidized for vocational education by State or Federal funds unless it provides diversified vocational curricula and maintains instruction realistically related to the demands of the labor market.

Some vocational-technical curricula are now being offered in the state colleges. Some of this instruction is labor market oriented and should be continued. Some of the courses are, however, lower division classes of a degree program and do not provide skills or knowledge which would be adequate in getting or holding a job. Vocational-technical programs in colleges must adhere to quality criteria for these programs just as the liberal arts courses must maintain quality criteria. The quality factors may not be the same for both types of programs.

It is recommended that the state colleges be considered as locations for vocational-technical instruction for youth and adults beyond the high school. Careful attention must be given to the following factors: (1) The instructors must be vocationally competent by reason of training and experience - recency of such training and experience is important. (2) The equipment and supplier must be similar to that which is used in the labor market activities. (3) The course content and the number of persons in training must be related to the labor market demands. (4) The students and instructors in such programs must not be treated as "second-class" citizens in the academic emphasis of the college.

Some of the vocational courses in some of the colleges now meet the above conditions. It will be necessary for the Division of Vocational-Technical Education in the State Department of Education to see that such standards are maintained.

Vocational-Technical Education for Youth and Adults at Work

There is a continuing need for updating, upgrading and retraining those persons in the labor market who need vocational education instruction to maintain or improve their employment security. Where the need for such instruction is similar to programs of instruction in high schools, area schools or junior colleges, the problems are largely problems of scheduling. It is very important to the state to provide such instruction and to encourage the expansion of these programs. One of the most effective and efficient methods of improving production and services is to upgrade persons on the job.

It is recommended that part-time and short-term vocational education courses be offered in junior colleges, area vocational schools and in high schools where equipment and teachers are available.

The apprentice programs should be expanded wherever it is possible. It is difficult for the school as an institution to expand apprentice programs. The apprentice is employed by an industrial, production or service industry. He often must be approved by a union prior to employment. The school, therefore, merely accepts the student after the selection has been made by the local joint apprenticeship committee. The school does have a responsibility to provide quality instruction and cooperate with the employer and the State agency of the Federal Bureau of Apprentice Training which has the responsibility for promoting apprenticeship training.

The State should continue to use the Federally financed MDTA (Manpower Development and Training Act) programs. This program is reaching a "hard core" unemployable group who, in general, are not served by the normal vocational programs. The State Employment Service is committed to find jobs for these trainees. This program is also funding literacy classes for trainees selected by the Employment Service as having a serious literacy handicap.

The short-term or part-time instruction for adults is given most extensively in the St. Louis and Kansas City vocational schools. In outstate Missouri, short-term or part-time instruction is primarily in vocational agriculture. The programs in agriculture should be continued to the extent that they serve the people and the State. They should be evaluated in terms of today's agricultural needs.

The programs in vocational schools of St. Louis and Kansas City are operated under a plan whereby Federal and State funds and student fees pay for the full cost of the instruction. This is being done on the basis of the financial limitations of the school districts and a belief, since many of the students are employed, that the student can share these costs. Many of the persons who need and are motiviated to take this instruction are in low salary brackets with extensive family responsibility. Improving the skills of the underemployed probably produces the quickest economic return to the State of any vocational education program in continuing employment, increased salary and lessened unemployment benefits.

It is recommended that local school districts be subsidized by the State so that adults taking short-term or part-time vocational instruction do not have to pay fees exceeding five dollars per semester course. Quality control and evaluation are necessary in this program as in all vocational instruction. However, the students in these programs are mature persons and are taking time and money from their adult responsibilities to the extent that the student usually does not continue in the class unless he is motivated by a realization that the instruction is beneficial.

Vocational Education for Youth and Adults with Special Needs

There are needs for instruction of youth and adults with special needs. The physically and mentally handicapped are being served by the Vocational Rehabilitation Service. This is very largely Federally subsidized. There are nine district offices with more extensive field personnel than the total of all other State vocational program services. This is largely a standardized nationwide program. It is very effective in serving persons with severe mental and physical handicaps. It should be recognized as a part of the vocational education spectrum.

The unmotivated, academically retarded, and often low aptitude youth is very difficult to serve as he reaches an age when employment is natural and desirable. Our society at present is more concerned about this person than it has ever been in all history. Vast Federal appropriations have been made to assist such persons. They are often from culturally disadvantaged homes and often from minority races. These youth often are not permitted in standard vocational programs, because they do not achieve and often make orderly instruction of others in the class difficult. The State Division of Vocational Education should recognize these youth as a responsibility and work with schools to develop programs to serve such youth. The State Division should work with other State and Federal agencies who serve these people. The MDTA program is this type of program for adults with unique vocational education needs.

Very few vocational programs are in evidence in the high schools of the State to meet the needs of the unmotivated youth. More attention should be given to these youth. The programs should, in general, be in the comprehensive high schools. Such youth should not be sent to area vocational schools until they can meet the normal criteria for a successful experience in these schools.

The Economic Opportunity Act provides funds and sponsors programs to serve youth with these needs. The Division of Vocational-Technical Education should work particularly with the Office of Economic Opportunity in developing effective vocational services. These services are usually (a) Neighborhood Youth Corps to provide jobs to keep youth in school and (b) Job Corps Centers with full-time educational and living services.

It is recommended that the State apply for a contract with the Federal government to operate a Job Corps Center in Missouri and that such a center serve only residents of Missouri. The State could involve all the related State agencies and thus serve these persons effectively and efficiently. This center should be operated by an agency of the State but not necessarily the State Department of Education. It should be closely coordinated by the State Employment Service and the State Division of Vocational-Technical Education.

Ancillary Services to Vocational-Technical Education

The following recommendations are made concerning related and ancillary services which are necessary to operate efficient and effective vocational education services.

Teacher Education

It is recommended that the State Department of Education establish an ad hoc committee to evaluate and recommend policies and practices for vocational teacher education.

Vocational education on a larger scale will require more teachers, different kinds of teachers and teachers who perform effectively. A number of the State colleges and the University now provide such teacher training. Teacher training should be studied for its effectiveness, the possibility of too much duplication, the availability of teacher training for newer occupations such as health services, industrial technicians and the in-service education of teachers.

The State Division of Vocational-Technical Education must exert leadership in the improvement of the teaching-learning process. Education for leadership in supervision and administration should be a responsibility of the University and should be assisted by the State Division of Vocational-Technical Education. The foregoing suggestion of internship will assist greatly in this respect.

Curriculum Development and the Production of Instructional Materials

It is recommended that the State Division of Vocational-Technical Education establish a Curriculum and Instructional Materials Production Center at the University of

Missouri. This center should be under the direction of a competent specialist in curriculum development. He should be assisted by subject matter specialists in the particular occupational categories being studied. This will require personnel taken from classrooms, laboratories or shops and assigned on a temporary basis for the period of the study.

It will be possible to solve many of the curriculum and instructional materials problems in the future by selecting materials from other states in order to benefit from work of this nature which already has been performed.

Guidance, Counseling, and Occupational Information

It is recommended that the guidance and counseling unit in the State Division of Vocational-Technical Education work with the colleges and University to place more emphasis upon the phase of developing counseling skills for occupational choices other than the professions.

There are serious deficiencies in the counseling and guidance of high school and junior college youth. A more determined effort should be made to give better training to counselors during their years in college. In-service education of practicing counselors is of even greater importance.

It is recommended that a person or persons within the guidance and counseling unit of the Division of Vocational-Technical Education be assigned to work with the Missouri State Employment Service to obtain occupational information related to the manpower needs of the State.

The state and national manpower needs should be collected, translated into usable information for high school and junior college counselors, and distributed to all the counselors within the state. Such information is never static and needs to be updated and circulated regularly. Major employment needs revealed by such studies should be called to the attention of the state leadership for vocational education to assist in curriculum development and program operation.

Research

It is recommended that a staff specialist in research be appointed to promote, direct and perform research studies, program evaluation, experimental projects and the interpretation and dissemination of the results of such activities in Missouri and other states. The major objective of this activity should be to assist the administration in the decision-making process. Such studies will have very little value unless they are interpreted, and the results disseminated to those who might use the information to produce changes.

The many resources of the University of Missouri should be used in these activities. Students and faculty should be subsidized in research and evaluation studies when they can serve vocational education in Missouri. Local school district activities should be scrutinized for creative activities which might be evaluated and the results disseminated.

The research staff should be responsible for all statistical reporting and should search for significant conclusions which might be available from such data.

Administration and Supervision

A suggestion for general expansion and reorganization of the staff in the Division of Vocational-Technical Education was made earlier. It is necessary to perform auditing, inspection, and compliance checking duties in the State

Division. The large amounts of State and Federal funds, laws and regulations, as well as the responsibility for quality standards, justify these activities. Such activities require considerable time, reliable information and accurate conclusions. With a limited staff these activities may be all a staff can accomplish.

It is recommended that the specialists' positions in the staff be recognized as "agents for change" and their activities directed toward assisting their administrative and teacher-supervisor staff in improving the instructional process.

It will be necessary to have an adequate salary schedule to recruit and hold personnel adequate for such tasks. It is equally important to maintain an environment within the State Division of Vocational-Technical Education and throughout the State which encourages innovation and recognizes creative talent. It is quite difficult in the political-bureaucratic environment of state government not to develop strong forces for the "status quo." Vocational-technical education at this time in its history must not be a slave to its past.

CHAPTER IV

FINANCING VOCATIONAL-TECHNICAL EDUCATION IN MISSOURI

Many of the suggestions made in this study cannot be achieved without increased funds being available. The following tables summarize the expenditures for school year 1964-65. This is not an ideal year for making an analysis of the funding of vocational education because it is the first year in which Federal funds under Public Law 88-210, the Vocational Education Act of 1963, were made available. This law increased the funds available to vocational education in Missouri by $2,050,000 - over one hundred per cent. These Federal funds were increased again in 1965-66 and will probably continue to increase for a number of years. Obviously, this larger increase in one year does not permit an analysis which will allow generalization.

State of Missouri and Federal Funds Available

Table 11 indicates the amount of funds available for vocational education in 1964-65 and the sources of these

TABLE 11

Federal and Missouri Funds

Available for Vocational Education, 1965–66

Federal Legislation for Vocational Education	Amount of Funds for Vocational Education				
		Funds for Missouri			
	Federal Appropriations	Federal Allotments	State Funds	Local School Funds	Total For Missouri
Smith-Hughes Act	$ 7,198,000	173,606	161,205	172,108	506,919
George-Barden Act	49,490,823	1,369,257	904,433	4,385,924	6,659,614
Vo. Ed. Act of 1963	118,500,000	3,921,632	123,056	4,908,389	8,953,077
TOTAL	175,188,823	5,464,495	1,188,694	9,466,421	16,119,610

* These funds do not include home economics expenditures.

funds. It should be noticed that the State provides considerably less money than either the Federal government or the local school districts.

The following tabulation indicates the percentage distribution between the sources of funds for fiscal year 1962-63 and two years later.

	Fiscal year 1962-63, Amt. in Million Dollars	Per cent	Fiscal year 1965-66, Amt. in Million Dollars	Per cent	Per cent Increase
Local District Funds	3.40	61%	9.47	59%	+ 179%
Federal Government Allocations	1.35	24%	5.46	34%	+ 304%
Missouri State Government Funds	.85	15%	1.19	7%	+ 40%
TOTALS	5.60		16.12		188%

From 1958-59 to 1962-63, the states averaged spending about twice as much money for vocational education provided by the states as they received from the Federal government. This compares to approximately one-fifth as much from the state as from the Federal Government in Missouri last year.

For the same years, the states averaged about 75 per cent as much money for vocational education provided by the state as was expended for vocational education. In Missouri the state government provided one-fourth as much money for vocational education as the local school districts did in fiscal year 1962-63 and approximately one-eighth as much in fiscal year 1965-66.

It is rather easy to conclude that the state government is the defaulting partner for financing vocational education in Missouri.

Table 12 gives the distribution of expenditures as related to occupational category and full-time enrollment. The ideal situation would be for these factors and the percentage of these occupational categories in the labor market (see Table No. 6) to have some degree of correlation.

TABLE 12

Distribution of Expenditures and Enrollment by Occupational Categories

Occupational Category	Enrollment 1965-66		Expenditures 1964-65	
	Number	%	Amount	Per cent
Agriculture	7,262	29	$2,046,882	27
Industrial	5,645	23	3,332,311	44
Office Occupations	8,295	33	1,400,898	18
Merchandising and Sales	2,270	9	360,799	5
Health Services	1,423	6	487,365	6

Note: This table does not include Home Economics which is not considered vocational instruction for the purpose of this study.

The tabulation below gives the ratio of expenditures by occupational category to the number enrolled. This is not the per pupil cost in these programs because there are elements missing which could not be obtained for this year. This ratio for Missouri is not greatly different from the national experience.

Ratio, Dollars Expended to Numbers Enrolled, 1962–63

	U. S. A.	MISSOURI
Agricultural Occupations	90	100
Industrial Occupations	127	115
Office Occupations	Information not available for this year	
Merchandising Occupations	43	45
Health Occupations	205	194

Table 13 indicates the distribution of expenditures by functions.

TABLE 13

Distribution of Expenditures by Function, 1965–66

Function	Funds Expended, Missouri*	
	Amount	Per cent
Administration, Supervision and Research	$ 484,597	5%
Teacher Training	118,994	1%
Instruction:	5,582,276	63%
Secondary	4,456,305	50%
Post High	410,602	5%
Adult	715,964	8%
Instructional Equipment	1,063,408	12%
Other	37,924	1%

* Does not include home economics expenditures

The distribution tabulation indicates the relatively small amount going to post-high school, which is caused by the small enrollments in post-high school programs in the State. The large amount expended for instructional equipment is abnormal caused by certain funds being available for purchase of equipment for the first time and by some of the funds not being released to the states from the Federal government until too late to use for program operation.

The State, using largely Federal funds available under Public Law 88-210, has provided funds the past two years for construction of buildings for vocational education classes. Table 14 indicates the amount of funds allocated and the location of these facilities. All of these schools have been designated as area vocational schools by the State Board of Education. The enrollments in some of these schools and the total 11th and 12th grade enrollments in the counties in which these schools are located indicate the great difficulty of providing vocational education in small high schools within reasonable financial limits.

TABLE 14

Funds Allocated for Construction, 1964–65 and 1965–66

School District	Enrollments, 1965-66				Funds Approved	
	Total Grades 11-12*	High School Vocational Students	Post H.S. Students	Adult Ed. Students	1964-65	1965-66
Joplin	1208 (2475)	275	107	34	$20,000	$169,137
Springfield	3176 (3993)	304	117	170	111,002	791
Sikeston	537 (1135)	432		20	233,926	
St. Louis County	20,738	401	333	1205		818,857
Jefferson County	2,419	105				255,317
Monett	228 (603)	57				172,864
Chillicothe	371 (447)					230,021
Linn	105 (401)		175			23,523
St. Joseph	1913 (2104)	149	24	225		72,497
Bonne Terre	147 (1135)	164	50	57		28,572
** Poplar Bluff	808 (1242)					
Brookfield	200 (536)	219	7	8		2,259
** Macon	222 (501)					2,426
** Waynesville	437 (754)					132,949
** Rolla	429 (714)					74,200
TOTAL					364,928	1,983,413

* Total grades 11 and 12 for the county are shown in parentheses.
** Designated but not yet functioning.

There appears to be no relationship between the size of the school and the funds approved for construction as shown in Table 14. There are a number of factors contributing to the variation in the approved amounts. These factors might be summarized as follows: (1) The local school districts were required to match any funds provided by the State. Some school districts did not have sufficient funds to match a larger amount than that which might have been available from Federal funds. (2) Some schools had considerably more shop and laboratory space already available than other schools. (3) Funds have been available from the State for only the past two years - these funds originate from the Federal grants under Public Law 88-210. With the limited amount of funds available, it will take several years to meet the needs in an equitable manner.

The buildings constructed by these funds were visited in Joplin, Springfield, Sikeston and St. Joseph. They were excellent buildings, some exhibiting very creative design to serve the program of instruction. There is considerable evidence that State aid for building construction will be necessary to promote the expansion of vocational-technical education programs. The basic problem is to allocate the funds where the largest number of students can be served.

Recommendations

It is recommended that the State provide considerably more funds for vocational-technical education.

Criteria should be developed, and followed with considerable rigidity, in order to use these funds in an efficient and effective manner. The following are suggested as criteria which should be given careful consideration.

1. Funds should be allocated by a formula which attempts to provide the difference between the average cost of an academic class and the cost of a vocational class. In this manner the State will be accepting the responsibility for the higher costs of vocational classes caused by

smaller class size and more costly equipment and supplies.*

2. The State should provide sufficient funds so that no local school district will be required to match funds received from the Federal government. This does not mean the local school district should not be required to provide some of its own funds for operating the vocational classes. These requirements should, however, be related to other than Federal requirements.

3. As schools begin to operate as area vocational schools the state financing should provide that the students from outside the school district are not a financial burden to the local taxpayer. The State and the home school district of the student should pay the complete costs of the commuting student. The State will probably have to pay the larger share in order to make the home school district interested in sending its students to another school.

4. Funds should be allocated to the local school districts primarily on the basis of pupil membership in vocational classes. The factors of need and any basic aid should be considered in the general state funding of education.

It is recommended that the State increase the allocation of funds for vocational-technical education program operation on an escalation formula of an additional two million dollars each year for a period of three years. These State funds would be combined with the Federal funds received by the State and used for State administration and operation, ancillary services and distribution to local school districts. These funds are illustrated by the following tabulation:

---

*See LOOKING AHEAD TO BETTER EDUCATION IN MISSOURI, Academy of Educational Development, Recommendation VI-5, page 75.

School Year	Federal Funds*	State Funds Program Operation	Local District Expenditures*	Total Program Operation Funds
1966–67	$5,500,000	$1,250,000*	$ 8,000,000	$14,750,000
1967–68	6,500,000	1,250,000 +2,000,000 3,250,000	9,000,000	18,750,000
1968–69	7,500,000	3,250,000 +2,000,000 5,250,000	10,000,000	22,750,000
1969–70	8,500,000	5,250,000 +2,000,000 7,250,000	11,000,000	26,750,000

* Estimated amounts

Note: These amounts do not include funds for Home Economics, for guidance and counseling within the schools, or for construction.

The allocation of these funds should be consistent with the Federal laws and similar to the present plan for distribution to local school districts and for use within the State Department of Education, Division of Vocational-Technical Education. The increasing amounts should allow for increased services in the Division of Vocational-Technical Education which have been suggested earlier and for larger allocations to local school districts. The use of these funds should be reviewed at the end of a three year period to determine future needs.

It is recommended that at the end of two years a committee be appointed by the Governor to evaluate the progress and achievements which have been made during this initial three year period and make recommendations for the State's vocational program of the future.

This committee should consist of professional educators; layman from business, labor and industry, and legislators. The research section of the Division of Vocational-Technical Education should have staff personnel to collect, organize and analyze data for this committee.

It is recommended that the State allocate two million dollars each year for construction and equipment. It is evident that the funds which have been allocated to local school districts have been a major factor in the expansion of the vocational program in these schools. Most of the local school districts do not have the facilities for an expanded program and it is doubtful if adequate space will be provided from the local property tax. The availability of some State funds will motivate the efforts of local school districts for increased financing of construction for expanding programs.

It is recommended that the state continue to use MDTA program funds to operate vocational classes for adults with special needs. The state should meet any matching of funds required by this Federal legislation. This program should be carefully studied in order for the state to learn from the experiences of this program and in order to effectively correlate it with the standard state vocational programs.

It is recommended that the state work very closely with the programs operated under the Economic Opportunity Act in order that their activities can provide vocational education services to youth with special needs. The Neighborhood Youth Corps, with its work experience, and the Job Corps, with its intensive job training, can be very effective in reaching persons who have extensive records of failure in the schools.

It is recommended that a study be made of Public Law 89-10 (ESEA) in order to use the provisions of this Act to contribute to more effective vocational education. The research provisions and the emphasis upon service to youth with academic problems or cultural handicaps are features requiring research and program development which can be a part of vocational education.

Conclusion

An effort should be made to update and extend the basic data on which the conclusions and recommendations have been made. As more valid and complete data are obtained, the conclusions and recommendations should be re-examined and revised if advisable.

We believe that vocational-technical education is a profitable investment by a state. It cannot be established and operated with profit to a state, however, unless the criteria which have been described are carefully followed. It must serve people, it must make them employable, it must keep them employable -- in this way it serves the state. Many agencies within the State must work cooperatively in order to keep these educational activities working effectively.